

December - 1957

finishing

MANUFACTURING
FROM RAW METAL TO FINISHED PRODUCT

CHEMICAL SHORTAGES mean REDOUBLED EFFORTS



Adequate warehousing space facilitates inventory control and prompt filling of orders.



Chemical processing on a large scale requires large reaction equipment.

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by

Ceramic™

Your problems are our problems. In times of shortages especially, we put forth every effort to meet the needs of those who have depended on us in more normal times.

We are doing everything possible to maintain sufficient inventories of essential chemicals to keep our customers' production lines

moving. When such chemicals are not available in usable form, we are testing and processing available material to produce them.

"Ceramic" quality is guaranteed . . . there will be no let-down in the rigid quality control or testing under operating conditions that every "Ceramic" product must meet.

**CERAMIC COLOR & CHEMICAL MFG. CO.
New Brighton, Pa., U.S.A.**



ARMCO—pioneer in the development
of a special-quality iron for fine
Porcelain **ENAMELING**—continues
to pioneer in research, improving its products
so that better Enameling **IRON** will
be ready for you tomorrow.



ARMCO STEEL CORPORATION

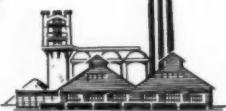
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**chemicals
for
industry
and
laboratory**

INDUSTRIAL CHEMICALS
FROM HARSHAW CHEMICAL

Electroplating Salts, Anodes and Processes
Driers and Metal Soaps
Ceramic Opacifiers and Colors
Fluorides
Preformed Catalysts, Catalytic Chemicals
Glycerine
Synthetic Optical Crystals
Agricultural Chemicals
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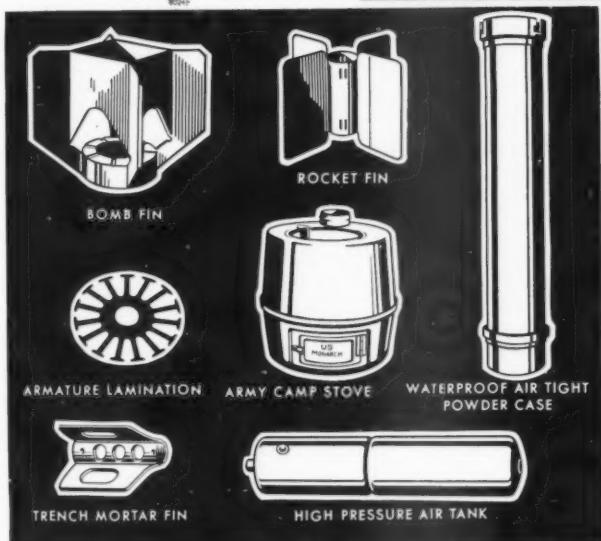
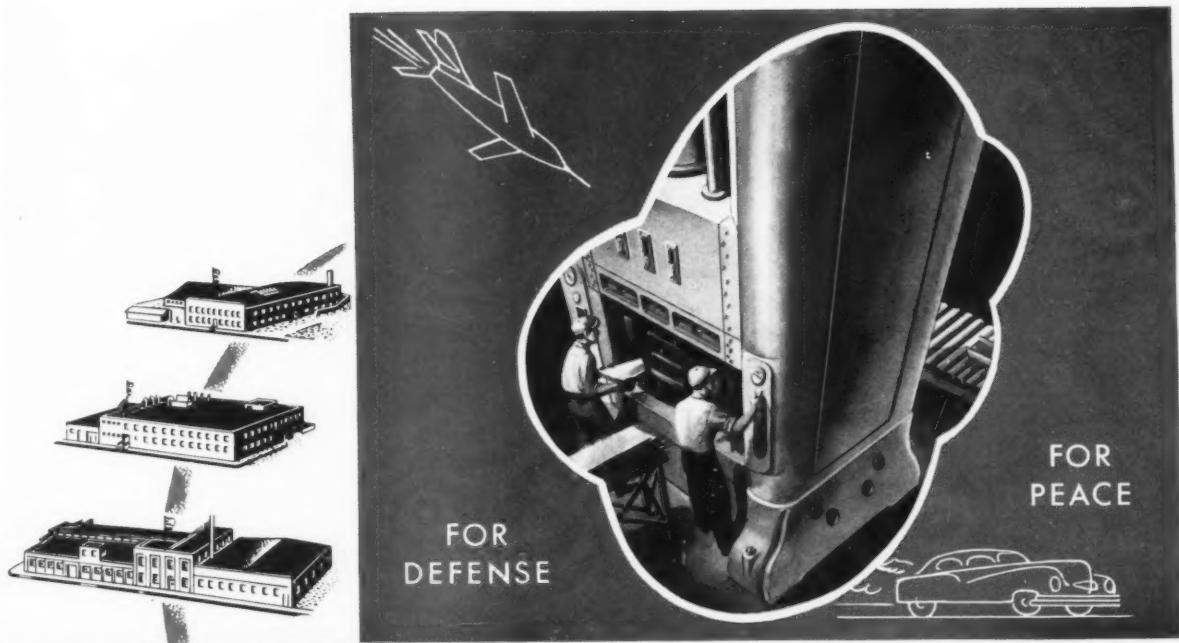
LABORATORY APPARATUS & CHEMICALS
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Harshaw Scientific Division of The Harshaw Chemical Co. is a logical expansion of Harshaw's progress in the chemical field. Laboratories need apparatus and chemicals to carry on their work. Thousands of items are carried in stock by Harshaw Scientific. Your requirements can be filled, whether you need chemicals and apparatus for a single experiment, or to furnish a complete laboratory. Branch offices and stocks are maintained in convenient locations to help you obtain your requirements within a short time.

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DIVISION OF THE HARSHAW CHEMICAL CO.
CLEVELAND 6, OHIO

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PRESSED STEEL PARTS FOR REARMAMENT...

Don't hold up your defense contracts for lack of steel stampings, sub-assemblies or finishing of any sheet metal parts necessary to enable you to meet your commitments.

Our 3 expansive, well-equipped plants have the most modern manufacturing facilities and are manned by a thoroughly trained and highly skilled staff. The accumulated benefits of 45 years of progress in the die and stamping field and the familiarity with government requirements we acquired during World War II make us your logical recourse in the present emergency.

Dies, tools, stampings, assembly and finishing—our knowledge and experience and proved dependability assure you the help you need to meet your schedule requirements.

We welcome your inquiries. No obligation.



When you think of Stampings, think of
NEW MONARCH MACHINE & STAMPING CO.
406 S.W. NINTH STREET
DES MOINES 9, IOWA

NO SHUT DOWN

To Carbon Treat Solution

with

SPARKLER FILTERS



A battery of 18 Sparkler Filters in one of the largest bright nickel plating plants in the world.

Carbon treatment without shut down is accomplished by cutting out one or two units in a battery of filters, removing the cartridge assembly of filter plates, and replacing with a new plate cartridge dressed with clean filter paper. The proper amount of carbon is mixed with water in a standby tank and recirculated through the filter thus depositing the carbon on the new plates in a cake of uniform thickness and density. The solution requiring a carbon treatment is then circulated through the carbon beds giving the plating solution the carbon treatment without contaminating the tank or stopping plating operations.

The quick change feature of the plate cartridge in Sparkler filters permits replacing a set of plates in a matter of minutes. Production can be resumed without appreciable interruption.

Sparkler Horizontal Plate Filters give absolutely sharp filtration at all stages of the cycle.

SPARKLER MANUFACTURING CO.

Mundelein, Illinois

European Plant — Herengracht 568, Amsterdam, Holland



MEETINGS

MIDWEST ENAMELERS MEETING

Midwest Enameler's Club, LaSalle Hotel, Chicago, December 1.

ICHAM SEMI-ANNUAL MEETING

Institute of Cooking and Heating Appliance Manufacturers, semi-annual meeting, The Netherland Plaza, Cincinnati, December 3-5.

HEATING, AIR CONDITIONING ASSN.

National Warm Air Heating & Air Conditioning Association, 38th annual meeting, Hotel Cleveland, Cleveland, Ohio, December 5-7.

CENTRAL DISTRICT ENAMELERS

Central District Enameler's Club, Allerton Hotel, Cleveland, Ohio, December 7.

AHLMA ANNUAL MEETING

American Home Laundry Manufacturers Association, annual meeting, Morrison Hotel, Chicago, January 5.

HOMEFURNISHINGS MARKET

Winter Homefurnishings Market, The Merchandise Mart and the American Furniture Mart, Chicago, January 7-18.

PLANT MAINTENANCE SHOW

Plant Maintenance Conference and Show, Convention Hall, Philadelphia, January 14-17.

HOUSEWARES, APPLIANCE SHOW

National Housewares and Home Appliance Exhibit, Navy Pier, Chicago, January 17-23.

EASTERN ENAMELERS CLUB

Eastern Enameler's Club, Sylvania Hotel, Philadelphia, January 26.

AT THE
CONVENTION

*Meet Your
Friends...*
bring your
finishing problems to

GLIDDEN-NUBIAN

HEADQUARTERS
Room 2530

America's FINEST
Appliance Finishes

NUBELITE • BOMBAY BLACKS

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SPATTERTONE

AND OTHER PRODUCT FINISHES

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Division of THE GLIDDEN COMPANY • Cleveland 2, Ohio

Pacemaker in Industrial Finishes... Leader in Technical Service

For **PURE** Water

INDUSTRIAL WATER DEMINERALIZERS



Mill Room Water Nickel Dip Solutions Neutralizer Solutions

A Two-Bed INDUSTRIAL Water Demineralizer. Standard two- and four-bed units available with capacities of 200 to 1000 gph. Special units of any capacity engineered to requirements.

**you SAVE
many ways...**

Cost analyses are proving that the use of raw water in metal coating processes is not so cheap after all. This is especially true when mineral-free water can be obtained for a matter of cents per 1000 gallons in any quantity with an INDUSTRIAL water demineralizer.

The operation is very simple. Raw water is passed through alternate beds of ion-exchange resins, and it comes out free of all mineral salts. No steam, heat, still, or cooling water is needed — keeping space requirements at a minimum.

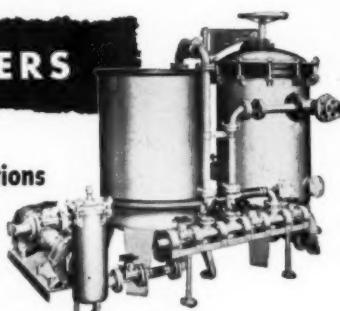
It's simple to get the complete facts for your case. Send us a water analysis and let us know how much water you have to treat and the gallons per hour needed. We can then give you the whole demineralizer story including estimated costs, equipment required, performance data, etc., for your requirements.

INDUSTRIAL FILTERS

for Clarification of Nickel Dip Solutions — Neutralizer Solutions ANY QUANTITY

A Typical INDUSTRIAL Filter. Standard portable and stationary models available with capacities of 100 to 15,000 gph. Special filtration systems engineered to meet unusual requirements.

Write for full information and recommendations.



FILTERS PUMPS CORROSION TESTING APPARATUS

Pressure Type Centrifugal Salt Fog • Humidity

RUBBER DIVISION
Vulcanized Linings • Molded Products

WATER
DEMINERALIZERS

INDUSTRIAL FILTER & PUMP MFG. CO.

5906 Ogden Avenue
Chicago 50, Illinois

SCRAP DRIVE CASE HISTORY

THIS is the case history of how one company complied with the steel industry's urgent request for more scrap steel and iron with which to maintain steel production levels.

A concentrated program was organized at Lyon Metal Products, Inc., Aurora, Ill., to enlist the aid of employees to participate in the collection of the vital scrap metal. The result was a return of more than 80,000 pounds of scrap steel and iron within the first two days of the drive.

These are the steps in which the scrap drive was carried out:

A committee was formed with the general production manager as chairman and eight key men of the plant and offices as committee members.

Twelve days before the drive got underway, the headlined invitation to get in the scrap drive was carried in the employees' monthly house organ, *Lyon News*.

The local radio station carried the complete story of the drive on its news broadcasts eleven days before the drive started.

Ten days prior to the actual scrap drive week, announcements of the drive were placed in pay envelopes.

A letter from the president of the company to department heads contained pick-up cards to be distributed to each employee with instructions concerning details of the drive.

Three days later, a personal letter containing an additional pick-up slip was mailed to employees with a repeat of the information.

Signs, bulletin boards, sound trucks with music and spot announcements, pretty company girls handing pick-up slips to employees were the methods used to encourage employees to participate in the drive.

In addition to employees, over 50 citizens of the community also participated.

Lyon Metal Products announces that it has an 8-page pictorial brochure of the steps that were followed in conducting the drive. This booklet is available for anyone interested in promoting a similar drive — write to Lyon Metal Products, Inc.

a

Merry Christmas

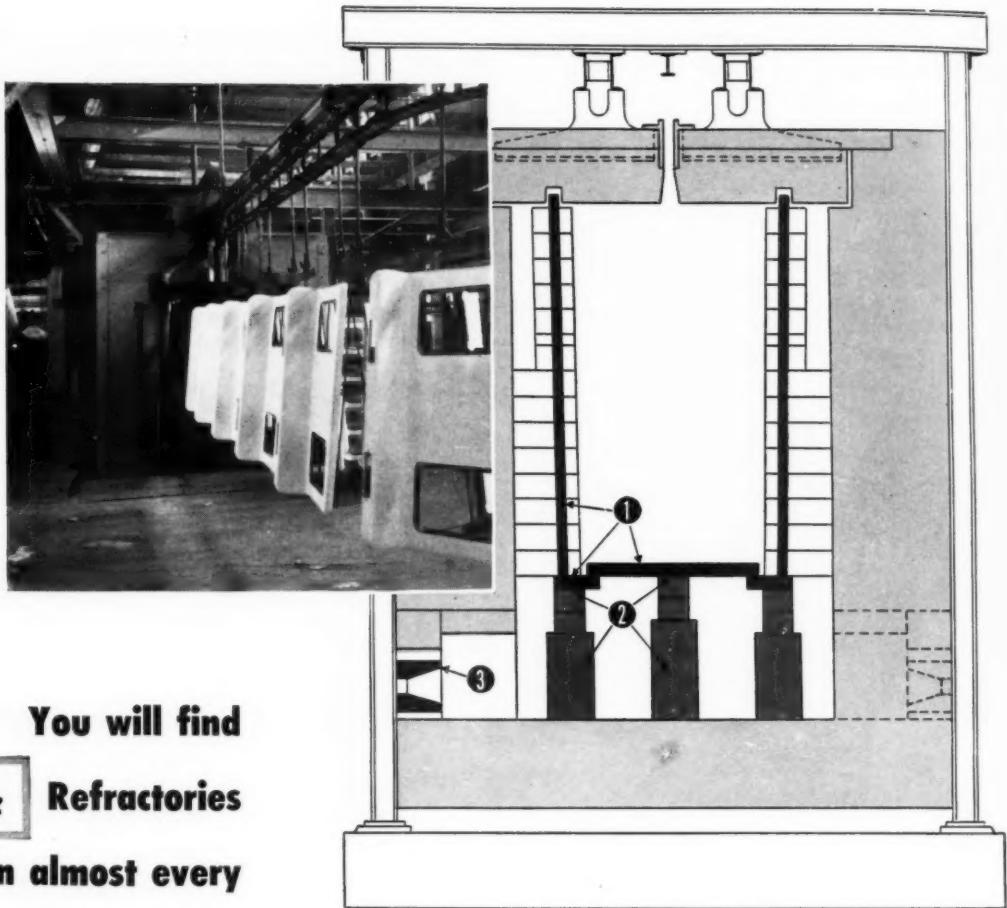
from the
McDanel
Organization



McDANEL REFRactory
PORCELAIN COMPANY

Beaver Falls,

Penna.



You will find
Super Refractories
 in almost every
 enameling furnace

Super Refractories by CARBORUNDUM pay their way many times over by helping to keep output up and costs down in continuous enameling furnaces.

If you have not tried these materials, or are not sure you have made maximum savings possible by using them, we would like to have you talk to a member of our engineering staff. There's no obligation. A letter to the address below will enable us to set up a meeting that will meet your convenience.

In continuous furnaces of this general type, Super Refractories by CARBORUNDUM are used because of a combination of three different properties. They have great hot strength, even at temperatures far above those reached in enameling operations. They have good resistance to spalling and thermal shock. And, in the case of ALFRAX electrically fused alumina and CARBOFRAX silicon carbide refractories, they have very high heat conductivity.

- ① ALFRAX or CARBOFRAX muffle (usually depending on operating rate) gives you maximum transfer of heat from combustion chamber to hot zone. CARBOFRAX preheat bottoms are often employed for the same reason.
- ② Either CARBOFRAX silicon carbide or MULLFRAX electric-furnace mullite material (depending on fuel and method of operation) is best for support arches, pier facing and leveling brick.
- ③ For burner blocks, MULLFRAX refractories, with high hot strength and low conductivity, are usually preferred.



THE CARBORUNDUM COMPANY

Dept. K-121, Refractories Div.

Perth Amboy, New Jersey

"Carborundum," "Alfrax," "Carbofrax," and "Mullfrax" are registered trademarks which indicate manufacture by The Carborundum Company.



finish SUGGESTION BOX

Strip coatings serve many purposes



FACTS AND PHOTOS COURTESY THE SHARPLES CORP.

Above: Before and after spraying polished nickel-alloy housing of fully enclosed motor for separator.

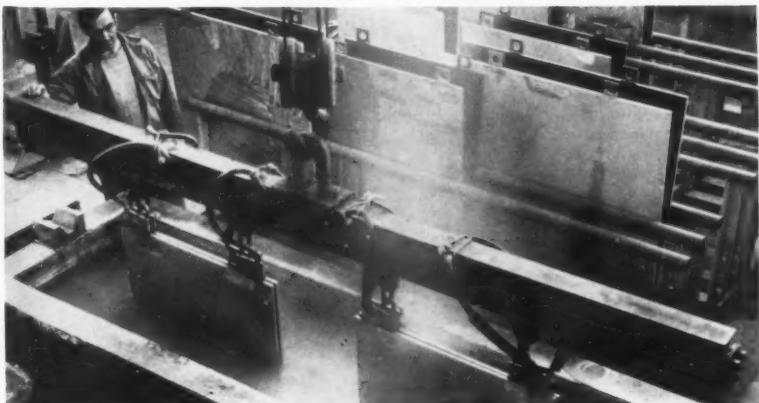
Left: Assembled frame and body castings for a Sharbles separator being coated with strip coating. Large openings for mounting sub-assemblies are taped over prior to spraying.

An increasing number of practical uses are being found in the metal products manufacturing field for protective strip coatings which are easily applied by spraying and easily removed by "peeling" without the use of solvents.

Below: Stainless steel cladding "inserts" about to be electroplated. The dark "reverse" side is coated with strip coating. The operating condition necessarily demands an effective stop-off coating.

Right: Stop-off coating being peeled from electroplated "inserts" of stainless steel. Note how "liquid envelope" peels easily in large pieces. Tough enough to work in a steel mill or metal fabricating plant, yet it peels easily.

FACTS AND PHOTOS COURTESY LUKENS STEEL CO.



FACTS AND PHOTO COURTESY CANADAIR, LTD.

Above: Spare gas tanks have openings taped and are then coated with a .015"-.020" strip coating film. A cushioning effect is provided by the tough flexible film.

ing, abrasion, scratching, handling, transportation or storage.

2. As a "stop-off" coating in electroplating processes.

3. As a packaging material for the interior and exterior storage of machinery and equipment—both defense and peacetime applications.

4. As a protective coating against marring and scratching of polished surfaces and finely finished products.

5. As a permanent protection for finely finished products or architectural components until the products or components have been installed at their point of final use.

6. As a coating for spray booth interiors in finishing plants, to reduce spray booth cleaning time.

Method of application

Typical strip coatings are applied by pressure-type spray equipment with standard spray guns, using from 80 to 100 pounds pressure on the air line and 30 to 50 pounds pressure on the fluid line. A wide fan spray is

[See U.S. Steel's new building, for which spandrels were protected with strip coating.]

to Page 72 →

FREE data sheets and additional information on the use of strip coatings may be obtained without obligation by writing finish. All requests should be on your company letterhead.



When a TAM* field engineer calls ...

You can obtain a wealth of practical, useful and authoritative information by discussing your technical problems with a TAM sales engineer. He is well equipped to work for and with you. More than ten years ago he received his degree in Ceramic Engineering from one of our leading universities. Since then, his education has been broadened by wide experience. In the field, he has had his coat off and his hand-in on more than a few plant projects. His advance informa-

tion on new developments and applications is a valuable asset.

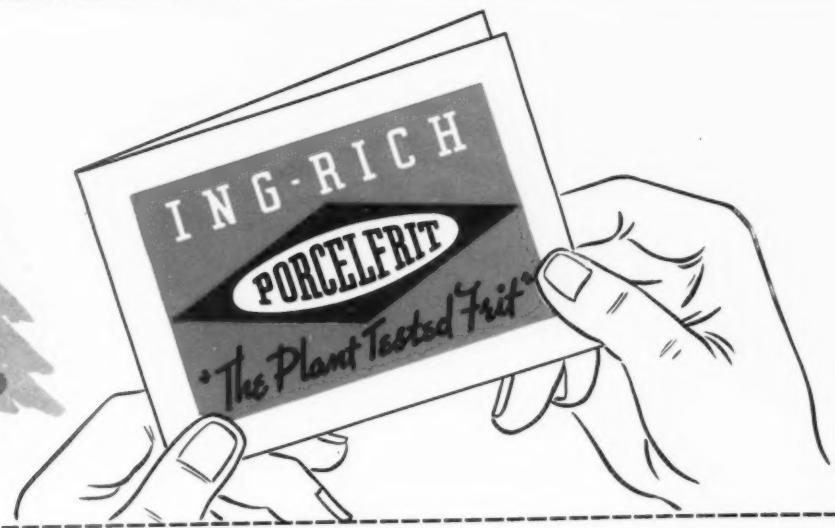
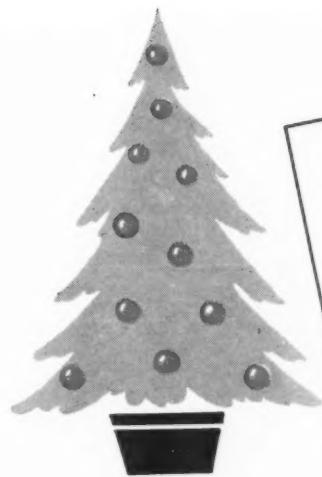
Here is a man ready to work with you. You will find him intelligent and cooperative—quick to understand your problems. Furthermore, he is your direct contact with a fully equipped and staffed headquarters that is the source of much worthwhile information and data. When your TAM engineer calls, get the full value that his background offers you.

**TAM
PRODUCTS**

Registered U. S. Pat. Off.

**TITANIUM ALLOY MFG. DIVISION
NATIONAL LEAD COMPANY**

Executive and Sales Office: 111 BROADWAY, NEW YORK CITY • General Offices, Works, and Research Laboratories: NIAGARA FALLS, N.Y.



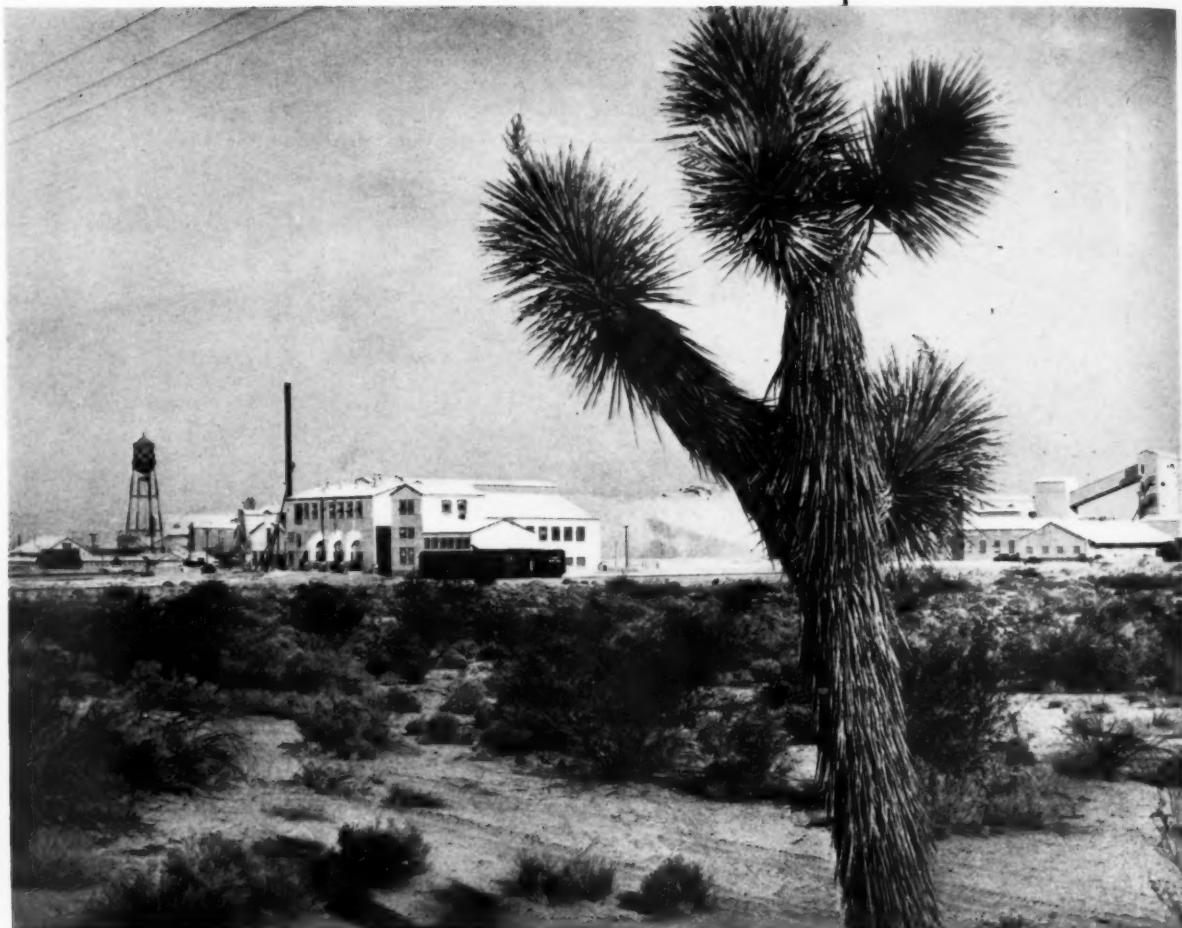
INGRAM-RICHARDSON, INC. • Frankfort, Indiana

Mine, Mill, and Camp...

BORON, CALIFORNIA

The Sodium Borate Ores used in the production of FERTILIZER BORATES now so widely used as essential plant foods are mined and concentrated at site pictured below.

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PACIFIC COAST BORAX CO.

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MANUFACTURERS OF THE FAMOUS "20 MULE TEAM" PACKAGE PRODUCTS



Ebonol-Z
a gleaming
black finish
for Zinc

**Beautiful,
jet-black, like polished Ebony**

These zinc automobile door handles are typical of the products processed in Ebonol-Z.

This simple, one-dip method imparts to zinc base diecastings and plated parts, a rich, adherent black coating with good weathering qualities. Parts need only to be cleaned and then treated for a few minutes in a warm solution of Ebonol-Z. Chemical cost is one-half cent per square foot of the area coated . . . cheaper than plating or painting. Now used for finishing war materiel, and typewriters, business machines, toys, cameras, radios, name plates, buttons, and buckles.

Samples processed in our laboratory.

Detailed procedures supplied without obligation.

Write for check list . . .

- Ebonol-S for steel
- Ebonol-C for copper and brass
- Ebonol-Z for zinc

Sixty Products and Processes for Metal Finishing

© 442 Elm Street, New Haven, Conn.

YOU READ ABOUT IT

**NOW FERRO JOINS SOLAR FOR MASS-PRODUCTION
OF NEW COATING TO SAVE CRITICAL METALS**

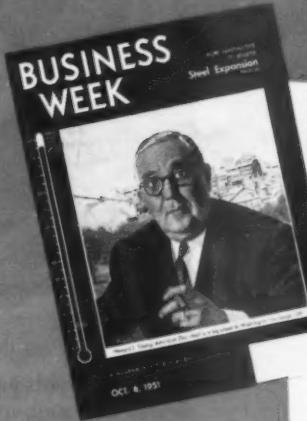
New fields open to Porcelain Enamelters

Ferro announces it has been granted exclusive license to manufacture and distribute the sensational new, high temperature resistant ceramic coating recently developed by Solar Aircraft Company, of San Diego, California.

Used now to save high-alloy metals in jet engine construction, this radical new ceramic coating will soon be available for burners and oven parts on household stoves and ranges . . . furnaces of all types . . . engine parts on trucks, autos, and commercial aircraft . . . hundreds of other applications involving both high temperatures and chemical corrosion.

Where can you use it to cut costs . . . to produce a better product . . . to save critical metals?





FERRO CORPORATION
Porcelain Enamel Division

4150 EAST 56th STREET • CLEVELAND 5, OHIO

These ceramic-coated exhaust parts for Ryan Aeronautical Company are entering the furnace on Inconel points for firing at 1850°F. at plant of the California Metal Enameling Co., Los Angeles, Calif.



Ceramic protected aircraft parts fired at 1850°F. on Inconel burning tools

It takes temperatures up to 1850°F. to fire the protective ceramic coatings on aircraft exhaust parts.

Naturally the burning tools used in such an operation have to be tough. Time after time they are sent into the furnace to take a high temperature beating that few materials can hold up under . . . for any length of time.

But the tools are no problem to California Metal Enameling Company who fire the parts for Ryan Aeronautical Company in Los Angeles.

That's because they use Inconel!

They find Inconel extremely resistant to corrosion and oxidation at tempera-

tures up to 2200°F. They also find that Inconel's high hot strength permits lighter weight fixtures with correspondingly lower fuel costs.

And as a result of their findings, practically all the burning tools and hooks in their plant are made of Inconel. *And they have worked perfectly since the first firing!*

Right now, Inconel is hard to get because so much is being diverted to defense. But if you have a high-temperature metal problem in your operation, INCO's High Temperature Engineers will gladly help you search out a solution. Write today and ask them to send you a High Temperature Work Sheet on which you can easily outline your problem.

Inconel®...

for long life at high temperatures



THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

**YOU GET
DOUBLE
PRODUCTION
WITH...**

**The
Tubular-
Shaped
Grinding
Medium**



BURUNDUM

You'll see double, you'll talk double — you'll get double the normal production of your mills — when you use Burundum, the cylindrical grinding medium.

Throughout the ceramic industry, mill operators are finding the simple replacement of conventional grinding media with Burundum makes sense — and dollars — through greatly increased production.

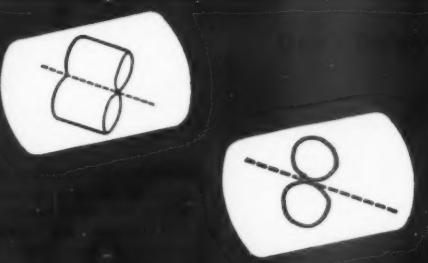
One manufacturer reports a grinding time savings of 50% on a heavy slip, a second 53% on dry frit, a third 78% on talc — and all with Burundum! Such reports are more common than unusual — are continually coming in — can originate in your plant — from the use of Burundum.

Primary reason for the greater grinding efficiency of Burundum is its unique, cylindrical form which gives you a greater area of attrition with each contact. Next, is its higher specific gravity which gives you a greater number of contacts through faster action and higher permissible mill speeds without excessive cataracting and "floating". Then, there is its greater hardness which assures a positive grinding action.

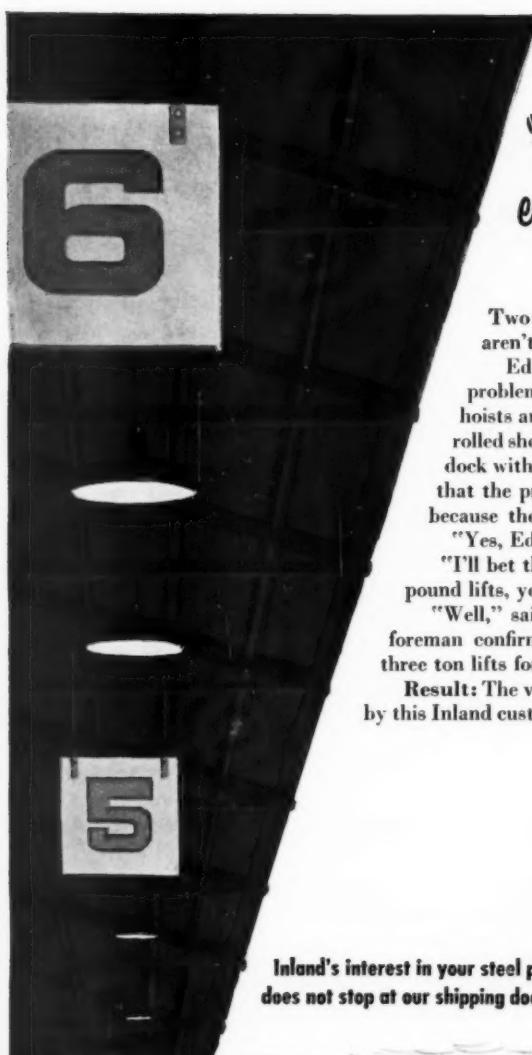
In addition to finer, faster grinding, you'll find other advantages in using Burundum. Its non-porous surface makes for quicker, easier cleaning. Its hardness and toughness make for slow, slow "wear-off" — giving long service and minimum contamination.

Get more out of your mills, put Burundum in!

252-C



PROCESS EQUIPMENT DIVISION



"How'd you like to save \$1.50 on
every one of those packages?" asked Ed

Two men stood watching the steel unloading operation. "Say Dave—
aren't those 6,000 pound lifts you're using?"

Ed Browning, an Inland "trouble shooter" on shipping and handling problems, was visiting the plant of a large manufacturer of hydraulic hoists and dump bodies. This customer had been ordering 42" x 96" hot rolled sheets from Inland in 6,000 pound lifts. As he stood on the unloading dock with Dave Nordstrom, the customer's purchasing agent, Ed observed that the practice was to remove only a few sheets at a time from the lift because their equipment couldn't handle a complete package that heavy.

"Yes, Ed, those are 6,000 pound packages. Why?"

"I'll bet that's a holdover from old packaging prices. If you can use 10,000 pound lifts, you'll save \$1.50 on every package."

"Well," said Dave, "we can soon find out." A check with the receiving foreman confirmed that it would be just as easy to break down five ton as three ton lifts for unloading.

Result: The very substantial saving of \$1.50 per lift on the large volume used by this Inland customer. INLAND STEEL COMPANY, 38 S. Dearborn St., Chicago 3, Ill.

Names used are fictitious

Inland's interest in your steel problems
does not stop at our shipping dock



Your Scrap is Needed by the Steel Industry for National Defense

Factors in the supply and demand for consumer goods

which way is business headed and what is the character of the coming shifts?

by Louis J. Paradiso •

CHIEF STATISTICIAN, OFFICE OF BUSINESS ECONOMICS,
U. S. DEPARTMENT OF COMMERCE

THE defense program is continuing its rapid expansion. It is now absorbing about 12 per cent of our total national output, although not all groups of the economy have participated in the higher volume of business which it is generating. Total national production, as measured by the real gross national product, has been moving upward this year and in the third quarter was 4 per cent above the fourth quarter of 1950, seasonally adjusted. The current rate is the highest in our history, surpassing the former peak year, 1944, of World War II.

Yet, along with this increase in over-all activity, many businessmen have experienced sharply reduced sales and orders, have laid off workers, and liquidated inventories across the board. At the same time, many other businessmen have been operating at capacity, expanding their facilities, and scrambling for materials as unfilled orders mounted.

These contrasting experiences underlie the divergent views held by businessmen regarding near-term business prospects, with many entertaining a picture of a business decline ahead of considerable magnitude, while others see only increasing demands pressing on inadequate capacity to produce. Let us examine briefly the basis for these views and the implications of the present programs.

Defense programs rising

Since the invasion of South Korea, the total of defense orders placed for procurement of military supplies has amounted to close to \$50 billion.



LOUIS J. PARADISO

New authorizations for the fiscal year 1952 will total around \$71 billion of which a substantial portion, as in fiscal 1951, will be obligated for procurement. Most of these procurement orders are for the so-called military hard goods—such as airplanes, tanks, ammunition, and electronic equipment.

Since June of last year, actual deliveries of military supplies have amounted to \$14 billion. Currently they are higher—at an annual rate of \$20 billion, or about half of the total defense expenditures. The deliveries of finished munitions to date lag considerably behind the far larger volume of work that has been put in process of manufacture. Present programs call for a defense expenditure total next year of something like \$60 billion, of which \$40 billion would be for military goods. Thus, it is clear that the economic impact of these programs will be growing in force at least through 1952.

The heavy placement of military orders has been reflected by the large volume of unfilled orders on the books of durable goods manufacturers. As of the end of August these

were valued at nearly \$52 billion, equivalent to an average of five months' sales just before the Korean invasion last year. With the new authorizations received by the military agencies, an additional large volume of orders will be placed with these producers in the coming months. Thus, the activity of firms engaged in this type of production will continue to expand. They will be absorbing an increasing proportion of our materials and manpower resources.

Business fixed investment strong

Businessmen's programs for plant and equipment expansion were magnified substantially after the Korean invasion. As the defense program evolved, it became clear that the sheer magnitude of the requirements of the defense and defense-supporting industries for basic metals and components compelled the expansion of facilities in many directions. But there was another strong incentive to expansion. The nation had become engaged in a partial mobilization program, the duration of which was indefinite. It became clear that such an effort would generate increasing purchasing power with resultant rising civilian demands. Hence, many firms have been engaged in large expansion programs not only to meet defense needs but also to attain increased capacity for the expansion of civilian output.

According to Department of Commerce and the Securities and Exchange Commission surveys, businessmen plan to spend one-third more

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Flow coating helps speed production at Bendix

by *Virgil C. Rice*

DIRECTOR OF MANUFACTURING, BENDIX HOME APPLIANCES, DIVISION,
AVCO MANUFACTURING CORPORATION



To meet production schedules at the Clyde, Ohio plant of Bendix Home Appliances, we have to prime coat at least half a million square feet of surface daily. The flow coating unit has assisted us materially in meeting our requirements.

In fact our flow coat unit does double duty. It primes our ware gray and in addition finish coats ware to remain gray. Because of this dual function we have been able to dispense with our black dip tank which we had used to coat backs, bases, and inside parts on washers and dryers. The gray finish gives us a more colorful and appealing product.

When we developed our wrapper type cabinets in place of the panel

cabinets, we came up against a new problem. To coat the interior satisfactorily was an exceedingly difficult job. Sprayers had to work from precarious positions to give full coverage and our plant consumption soared.

Answers "wrapper type" cabinet problem

But by using the whirling arm flow coating unit, we were able to throw the paint inside the cabinet and actually get very complete coverage. Even the recessed areas of the welded-in sections were better covered than when sprayed by hand.

In addition humidity and salt spray tests gave added proof that our interior coverage was superior. Then the effective resistance of the flow coat material chosen enabled us to

omit the enamel from the interior yet attain even better protection for the cabinet interiors than we had formerly.

Six stage cleaning and phosphatizing unit

All parts to be painted are processed through our six-stage washer unit where they are cleaned and phosphatized simultaneously in the first four stages. The fifth stage is a cold water rinse and the final stage a rinse in very diluted chromic-phosphoric acids. This multi-stage cleaning and phosphatizing has recently supplanted our old system wherein we had cleaning only in stage one and phosphatizing only in stage four. Production requirements necessitated running the cleaning and phosphatizing chain unduly fast. With our for-



The author, left, and Wm. Brennan, ass't dir. mfg., watch as worker makes viscosity check.



Inside the flow coating unit, parts get their gray prime coat. Also, some components are given a second finishing coat in this machine.

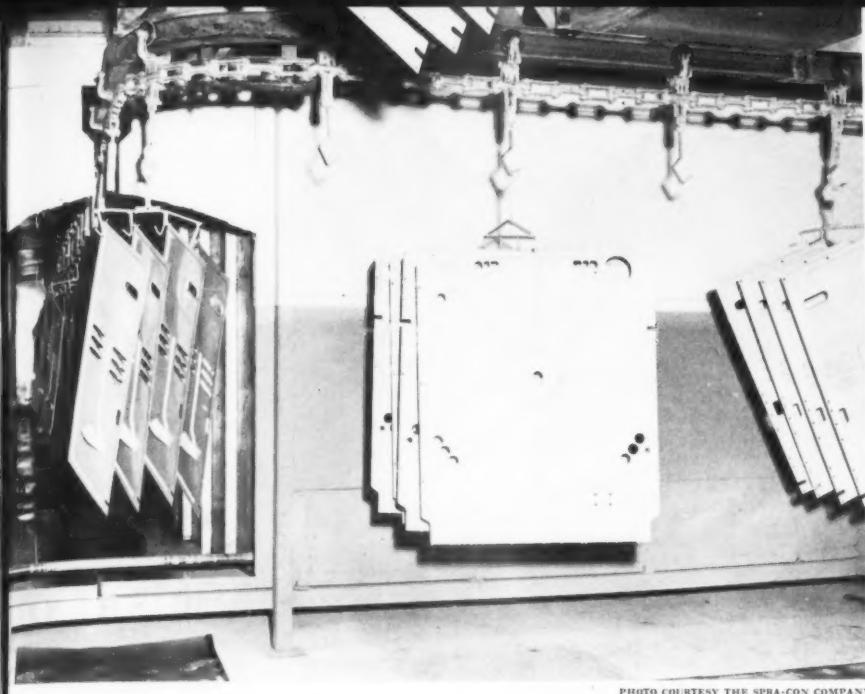


PHOTO COURTESY THE SRA-CON COMPANY

This photo shows some fabricated "flat ware" leaving the flow coating machine, following application of the prime coat of paint.

mer set-up, this gave us a minimum cleaning time and phosphatizing time. Because of the additional processing time gained in using our present system, we are now getting a superior preparation of metal for painting.

After leaving the washing unit the ware is dried through a gas dryoff oven.

The gray flow coating unit is equipped with three rotating arms—one on each side of the cabinet and the third on the bottom. In addition there are fixed nozzles overhead that may be used. Each of the rotating arms is equipped with two nozzles; one at the end of each arm. In operation, a dense curtain of paint is formed

through which the ware passes to be coated.

Chain speed 19 feet per minute through flow coating

Here the unbelievable happens. The paint is actually thrown into the most inaccessible inner areas and practically perfect coverage is effected. Our speed through the unit is 19 feet per minute which gives about 16 minutes drip time through the three hundred foot long drip area. The largest percentage of the dripping material is recovered and returned to the supply tank and recirculated.

The gray primer used in the flow coats is especially formulated to flow freely from the work leaving a thin,

uniform film free from runs or sags. It was especially developed for use with this type flow coating machine.

Going directly to the overhead oven, the ware coated with a three-tenths of a mil. film receives a bake of 10 minutes at an average temperature of 425° F. Ware to be white enamel finished is then transferred to the white chain where it is sprayed, then baked for 18 minutes at 335° F. peak temperature.

We have found the diversification of the unit is such that it can be adapted successfully to all size and shape pieces from small bolts to full size cabinets. We also feel that raw edges get much better coverage, greatly improving our quality.

Parts that have been through the flow coating machine are baked for 10 minutes, and then transferred to the "white" chain for a trip through the finish coat spray booth.



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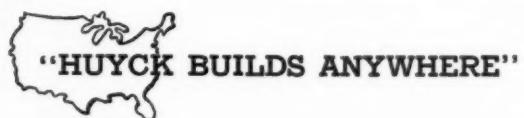
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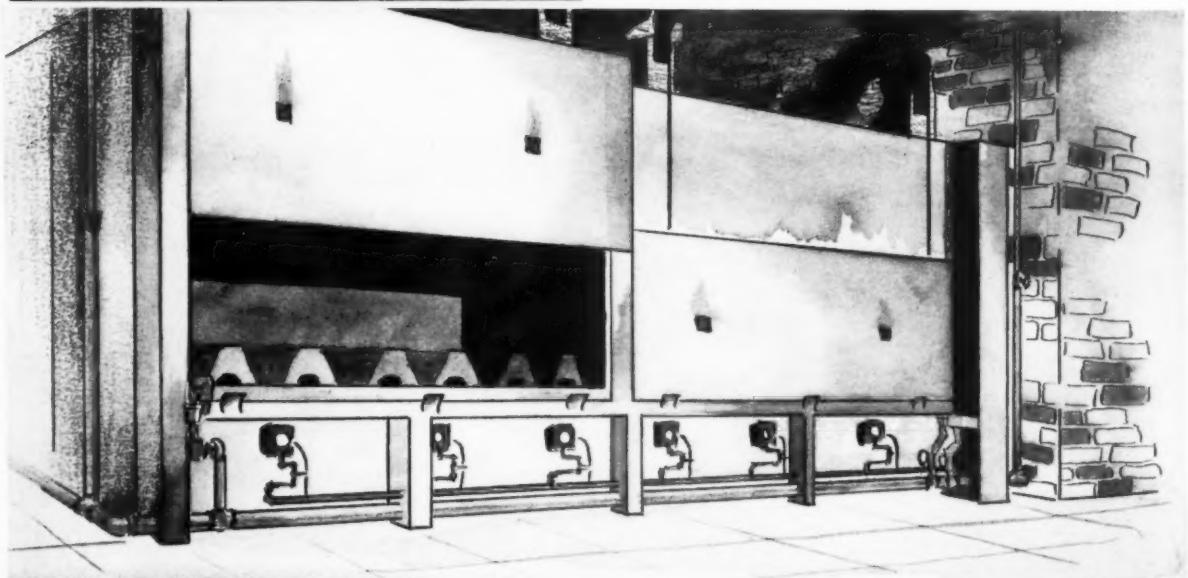
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The technical details of low pressure spraying

by Roy D. Beck • MANAGER, CERAMIC DIVISION, BINKS MANUFACTURING CO., CHICAGO

LOW pressure spraying is straight mechanics. A definite amount of air is required to atomize a definite amount of material in a unit time. Many manufacturers have long realized its advantages, but not until comparatively recently have materials and conditions been such that the technique could be successfully applied.

I propose to submit both engineering and plant production data that may throw additional light on conclusions drawn to date.

In order to make the analysis, we shall break the subject down as follows:

1. Expendable materials
2. Product and its design
3. Supervision and personnel
4. Equipment
5. Process technique
6. Production
7. Advantages and conclusions

Materials

There are many variable factors apparent in the enamel materials that require study in order to learn what limits to use and maintain. An important factor that has brought on the use of "low pressure" is the advent of titanium opacified enamels over the zirconium enamels. Production could not be maintained with low pressure atomization unless additional sprayers were added to the line. Low pressure could have been used to a greater advantage in spraying the old antimony opacified enamels than they could with zirconium.

In general it is agreed that to obtain best results the specific gravity should be increased and the set decreased. Also, the fineness has a definite bearing upon results. For our

purpose, the finer the better, but as in most cases, there is a limit to the fineness that can be used because of other limits of material and product



ROY D. BECK

that may result in tearing, hairlining, etc. The finer the material, the easier it is to atomize and less "bounce back" from finish surface while being sprayed.

Product and design

It has been pointed out that a highly specialized production plant can show more advantages and savings than a plant of varied production. For example, a production line running a single item such as food compartment liners, washing machine tubs or range flat ware is in an excellent position to control all phases of low pressure spraying and as a result obtain greater benefits. A job shop would encounter greater problems and have more difficulty in maintaining control and technique. It has been found necessary to determine a "set" and specific gravity for the various items being coated if the ultimate advantages are to be

gained. No doubt, the greatest extreme would be the differences between flat ware being sprayed flat as against washing-machine tubs being sprayed while rotating.

Supervision and personnel

The best equipment and materials could not give the desired results if supervision were not sold and did not want it. Every effort must be made toward a rigorous and long training program with the operators. In order to accomplish this, supervision must be firmly convinced of the merits of the process, then follow through with a well planned training program, and last but not least—follow through. No method is any better than its method of follow up. It is very easy to start a program and then soon forget it. The old saying goes "it is hard to teach an old dog new tricks." So, it will be doubly difficult to convince old sprayers that there are now easier and better methods of spraying.

Equipment

The equipment manufacturers are constantly working on new developments in order to come up with what is needed before it is requested. In an effort to give readers a better picture of all problems involved, I would like to state herein some engineering fundamentals.

In the flow of viscous incompressible fluids through a smooth pipe or tube, the pressure drop per unit length of pipe will depend upon:

1. Pipe or tube diameter
2. Average axial velocity of flow
3. Mass density of fluid
4. Viscosity of fluid

Reynolds showed that laminar flow



On this washing machine tub production line, low pressure spraying is used for both automatic and manual set-ups.

(the simplest type of flow that occurs, or the fluid moves along stream lines in the axial direction) in a circular, smooth tube changes its character gradually to a second type of flow called turbulent flow (transfer of momentum from layer to layer of the fluid). He showed by theory and experiment that this change depends on amount of disturbance in the fluid as it enters the tube.

A dimensional analysis shows that the force necessary to move a liquid through a body is of the form:

$$F = Cf \frac{pAV^2}{2}$$

where F =Force

Cf =A dimensionless force coefficient

p =Mass density of the fluid

V =Velocity of motion of the fluid

through the body

A =Cross sectional area

The Cf is dependent in the general case on many dimensionless criteria. Some of these are:

Reynolds number which is

$\frac{\text{Inertia force}}{\text{Viscous force}}$

Mach's number which is

$\frac{\text{Inertia force}}{\text{Pressure force}}$

Froude's number which is

$\frac{\text{Inertia force}}{\text{Gravity force}}$

Therefore, it is readily apparent, having all these variables present, that you cannot use a material pressure of X pounds per square inch because your friend, Joe, is obtaining good results with X . In fact, I believe less trouble would be encountered if we had X 's, a plain dial or

even no pressure gauge at all on the material line. We are interested only in the amount of material being delivered to the gun nozzle. In order to overcome all factors mentioned plus hose diameter, length of hose, condition of interior of all passages including hose and gun, we can only be concerned with delivery through the gun nozzle. Nearly all manufacturers have material metering nozzles developed having openings from .040" to .500" with reasonable graduations from one size to the next, and atomizing nozzles that handle sufficient cfm to break up the material. For our work, it has developed that openings of from .060" to .086" seem to adapt themselves best. Smaller openings cannot be used very successfully due to possible clogging because of particle size and excessive wear because of material speed which exaggerates abrasive action.

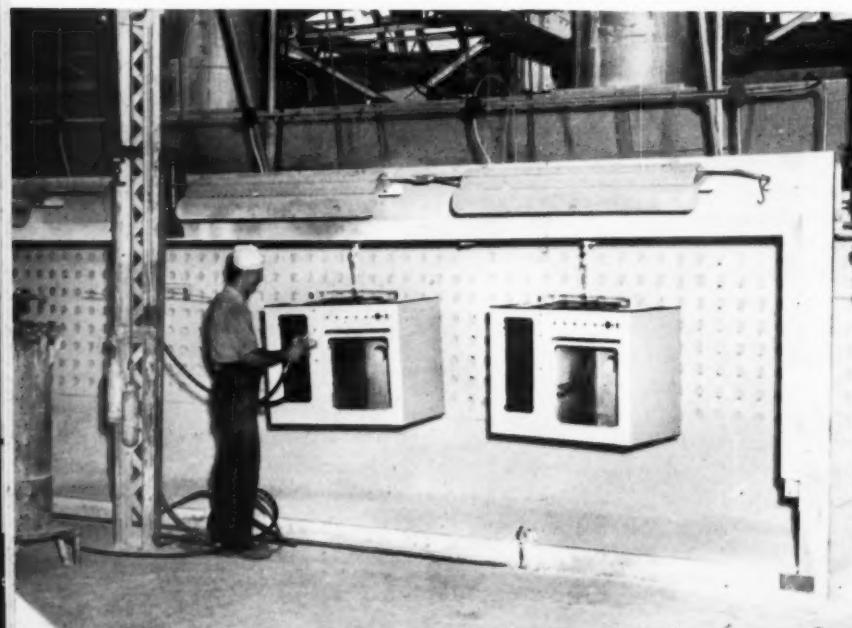
Larger openings cannot be used because of delivery control which reverts directly to a more accurate regulator at low pressures. This would mean a greater precision instrument with a resultant greater cost, and a control factor no better than present regulator which seems sufficient.

Naturally, the life of a material nozzle will depend upon

1. Rate of flow through nozzle
2. Composition of the nozzle

In order to obtain greater life under (1) the process and techniques must be developed to the ultimate so that as much of the material will be applied to the ware as possible.

Various materials are offered in nozzle composition, such as tungsten carbide, carboloy, stainless steel, and cold rolled. For vitreous enamel work, I would rate them in the order given. Tungsten outwears other nozzles by ten to twelve times.



In this appliance plant, the low pressure system with hand spray is used on the range body production line.

Experience of at least two recognized equipment manufacturers shows that the best nozzle kit developed can properly atomize approximately 32 ounces of vitreous enamel per minute. This nozzle pulls about 19 cfm at 50 pounds pressure at the nozzle.

At this point, I would like to call your attention to a gas law known as Boyles Law, which we were all taught in our chemistry class. It reads: "The volume of any gas varies inversely as the pressure upon it providing the temperature is kept constant or when the temperature of a given mass of gas is held constant the volume and pressure vary inversely."

PV=Constant—or

V2=PI

VI P2

Earlier we sprayed P1=50 V1=19 or constant of 950

Today we spray P2=30

V2=11.5 or constant of 345

Therefore, we cannot atomize 32 ounces of material per minute at 30 pounds nozzle pressure. In order

Data gathered at production plant using same regulator and 6' 0"-5/16" air hose.

Gun and Kit	Reg. Pr.	Nozzle Pr.
H	70	50
C	70	52
H	60	43
C	60	44
I	50	34
H	50	35
C	50	36
H	40	28
C	40	29
I	40	22

*Present low pressure range

to obtain the greatest PV constant at the operating pressure we desire, it is vital to obtain an air nozzle that will give the width fan desired when side port controls are wide open. Cutting down the side port control air greatly affects the maximum efficiency of the air nozzle.

Process technique 90% important

General opinion in the field to date is that 75 to 80% of the success of this process is in technique—once all concerned are sold and agree to adopt the operation. I want to go on rec-

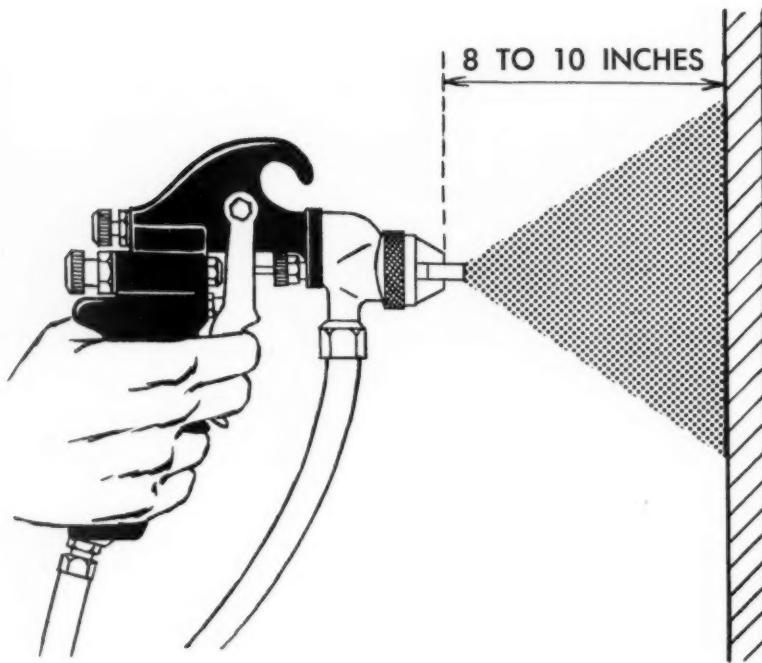
Data taken from plants using various equipment on the low pressure program.

Enamel	Gun	Specific Gravity	Pick Up	Barrel Pr.	Reg. Pr.	Nozz. Pr.	Delivery Oz/Min	Application Grams/Ft
Ti	A	1.70	70	14	55	38	20.3	25
Ti	B	1.70	66	10	48	36	18.3	25
G.C.	A	1.64	74	13	49	37	24.7	18
G.C.	A	1.64	75	10½	49	37	20.3	18
G.C.	B	1.79	74	19	42	31	20.3	Re-Edge
Zr	B	1.88	80	24	72	48	40.5	45
Zr	B	1.88	84	22	58	40	22.0	45
Zr	B	1.88	84	20	62	45	29.0	45
Zr	B	1.88	84	24	58	40	31.0	45
Ti	E	1.70	70	13	52	34	18.3	25
Ti	A	1.70	67	11	50	32	18.3	25
Ti	D	1.70	83	7½	45	30	18.3	25
Ti	F	1.70	83	7½	45	28	18.9	25
Ti	E	1.70	83	7½	45	27	18.9	25
Ti	A	1.70	83	7½	45	28	18.3	25
Ti	G	1.70	83	8¼	45	32	18.9	25
Ti	B	1.70	83	8¼	40	28	18.3	25
Ti	C	1.70	83	8	42	30	18.3	25

Data from engineering laboratory and finishing plants affords an interesting opportunity for reader comparison.

Data obtained in engineering laboratory using 6' 0"-5/16" hose.

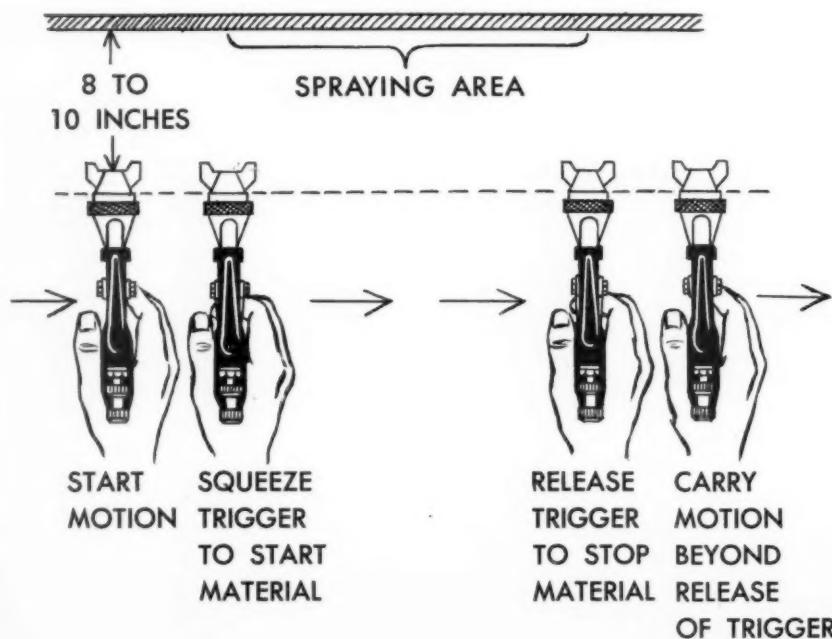
Gun and Kit	Side Port	Regulator Pressure	Pressure Drop Open	Pressure Nozzle	CFM
D	Closed	80	68	64	13.50
	Open	80	66	57	18.00
	Closed	60	55	51	11.00
	Open	60	53	46	15.25
	Closed	50	47	43	8.25
	Open	50	45	38	14.25
	Closed	40	37	32	6.75
C	Open	40	36	30	13.00
	Closed	80	68	62	13.00
	Open	80	65	53	20.00
	Closed	60	53	47	10.50
	Open	60	51	40	17.00
	Closed	50	47	42	9.75
	Open	50	47	36	15.75
B	Closed	40	38	32	7.75
	Open	40	37	27	12.75
	Closed	80	68	61	13.00
	Open	80	65	53	19.75
	Closed	60	54	48	10.50
	Open	60	51	42	16.00
	Closed	50	47	41	9.50
J	Open	50	46	37	14.50
	Closed	40	38	32	7.75
	Open	40	37	28	12.00
	Closed	80	68	59	12.00
	Open	80	65	50	19.50
	Closed	60	54	45	9.75
	Open	60	52	39	15.75
K	Closed	50	46	38	8.50
	Open	50	45	33	14.00
	Closed	40	36	29	6.75
	Open	40	36	25	11.50
	Closed	80	66	57	12.50
	Open	80	64	47	18.50
	Closed	60	54	45	10.25



ord and state that the figure is 90-95%.

It is quite obvious that our object is to get all the material that is delivered from the gun—properly atomized and applied to the surface—with a resultant good finish. The ultimate, naturally, would be 100%. In order to do this, the following must be studied and followed very closely.

1. Lowest atomizing pressure possible and still obtain satisfactory surface finish.
2. Some types of ware do not require the finish that others do; therefore, can use lower pressures.
3. Hold gun perpendicular to finish surface at all times.
4. Hold gun as close to finish surface as possible. Do not let fan



overlap and spray material into the booth. 8-10" from surface is conventional now.

5. Trigger the gun at the end of each stroke.
6. Be sure the nozzle kit of the gun maintains a good solid "clean cut" diamond at the breakup point — just ahead of the air nozzle.

Overspray cut in half

With the advent of titanium enamels and the low pressure process, the amount of overspray has been greatly reduced from approximately 50% to 20-25%.

After the foregoing program had been incorporated and in operation for about a year in a large washing machine tub plant, everybody concerned was well pleased with results obtained. They are getting a good finish and maintaining production with the regular number of sprayers and had reduced the overspray to what seemed to be the minimum, i.e., approximately 20%. However, a short time ago, they installed an automatic spray machine that replaced two hand sprayers for spraying the exterior of the tubs. Until the machine was installed, each of the four sprayers sprayed approximately 600 lbs. of enamel (frit equiv.) per 8-hour shift. From the day this machine was put into operation, not only were two sprayers eliminated but 600 lbs. was saved—or, in other words, *production was met with 600 lbs. less enamel*. Naturally, this cut overspray another 50% over what had been saved. The actual overspray from this machine is 10%. This is what technique will do. Every tub receives the same treatment as production goes on around the clock. This machine was paid for in savings of material alone before the first week rolled by. Advantages gained by technique add up very fast from many directions.

Production results

In going from high pressure to low pressure atomization, we have verified by plant experience and engineering fundamentals that we are forced to cut the amount of material

to Page 65 →



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Army ordnance lacquer specifications

by Dr. C. F. Pickett • CHIEF, PAINT AND CHEMICAL LABORATORY, ABERDEEN PROVING GROUND

ARMY Ordnance has recently introduced four new nitrocellulose base paint specifications. These four specifications represent the volume items of lacquer finishes used in Army Ordnance. These specifications are MIL-P-11414, MIL-L-11195, MIL-S-10181 and MIL-L-10182. MIL-P-11414 and MIL-L-11195, insofar as Ordnance is concerned, replace JAN-P-72 and JAN-L-73 respectively.

The new specifications were prepared in order to offer the manufacturer of Ordnance materiel latitude in the method of finishing. In time of emergency or heavy procurement, many sub-contractors are called upon to manufacture certain components. In many cases, lack of equipment, physical shape or size, or other physical or chemical reasons makes the use of enamel types of finishes burdensome because air drying schedules for the enamel type are frequently much too slow for production lines, while baking may not be feasible because of lack of ovens or power requirements. With the existing Army Ordnance lacquer specifications, it is possible to use nitrocellulose base systems for a wide variety of materiel.

New specifications more exacting

In the development of the new lacquer specifications quality and performance has been the goal. It is strongly believed that if the design engineers and personnel responsible for production are offered lacquer systems providing durability comparable in quality with enamels they will be willing to permit deviations whenever it is needed to speed up production. The new specifications are much more exacting than previous specifications and will require careful formulation, understanding, and manufacturing control. Ordnance

experience has clearly shown that lacquers supplied against some of the older less demanding lacquer specifications were of poor quality. Such a condition creates a belief in the minds of using personnel, especially those un-informed on lacquer formulations, that as a class of finishes nitrocellulose base materials are inferior. It is therefore important to Army Ordnance, and to suppliers of lacquer base products, that finishes fully meeting the requirements of the specifications be supplied.

Proper metal treatment

MIL-P-11414 is a red oxide primer containing a small amount of rust inhibiting pigment. Nitrocellulose primers in the past have been reputed to lack adhesion to ferrous metals and much of this reputation was acquired before the era of proper metal treatment. MIL-P-11414 is generally applied over a properly treated metal where excellent adhesion is obtained relatively fast. Over bare steel, full adhesion is reached in about 72 hours, though this can be greatly accelerated by the application of heat. Extensive testing has shown that MIL-P-11414 has very good adhesion over either bare or phosphated steel. It is believed this adhesion results from careful selection of inert pigments and the proper pigment to binder ratio by volume.

Hot spray lacquer specification

MIL-L-11195 is the hot spray lacquer specification which includes six colors, plus black and white. While this specification describes a lacquer in the lustreless range, the high performance is obtained by careful selection of inert pigments and pigment to binder ratio. This material was originally developed for ammunition

and components but will probably be more widely used because of its good gasoline resistance.

MIL-S-10181 is a lacquer surfacer intended for use where smooth surfacers are required or to obtain high coverage.

MIL-L-10182 is the gloss lacquer enamel intended for high gloss finish for such applications as staff cars, busses and ambulances. Work is in progress to include several colors in addition to the olive drab and also to make possible application by hot spray. By careful formulation it is possible to obtain a reasonably high gloss without rubbing and polishing.

Ammunition specification

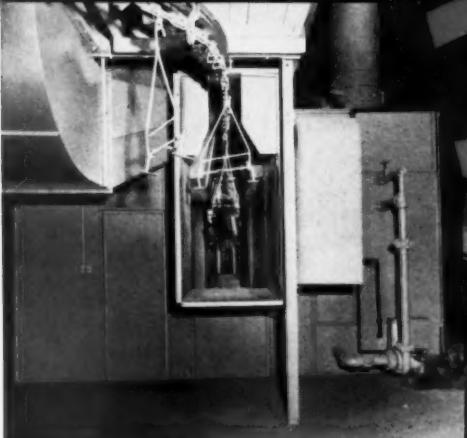
The finishing of ammunition calls for the application of a grade I, JAN-C-490 phosphate treatment followed by a coat of MIL-E-10687. The lacquer specification MIL-L-11195 is offered as an alternate and will likely be used in many production lines. Where phosphate treatment is not desirable or possible, the ammunition or components should first be given a prime coat of MIL-P-11414, to be followed by either the enamel or lacquer top coat.

It is expected that considerable lacquer type formulas will be used in tank, automotive and components. In the finishing of tanks, a system has been worked out calling for a coat of MIL-P-15328 followed by a coat of MIL-P-11414 and a coat of MIL-L-11195 olive drab for the exterior; and a coat of MIL-P-15328 followed by a coat of each of the following for the interior, MIL-P-11414, MIL-S-10181 and MIL-L-11195 white. A production line of busses is already on the lacquer system.

The extended use of nitrocellulose
to Page 72 →

COMPLETE Finishing SYSTEMS

for ENAMEL • LACQUER • PAINT



Entrance End of Mahon Hydro-Filter Spray Booths at Revco, Incorporated, Manufacturers of Home Food Freezer Cabinets and Other Products.



Home Freezer Parts at Revco, Inc., Emerging from Mahon Five Stage Cleaning and Rust Proofing Machine and Entering Dry-Off Oven Located Overhead.



Interior of Mahon Hydro-Filter Spray Booths at Revco, Incorporated. Note New "Hydraire" Flood Sheets which make for better working conditions.



Home Freezer Parts Emerging from Mahon Hydro-Filter Spray Booths at Revco, Incorporated, and Entering Finish Bake Oven Located Overhead.

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MAHON



Paint, varnish and lacquer group meets in Atlantic City

REPORTED BY *Matt Heuertz* • ASSOCIATE EDITOR

THE 63rd annual meeting of the National Paint, Varnish & Lacquer Association was held in Atlantic City's Haddon Hall, October 29, 30 and 31. Highlights of the convention included a panel on military lacquer specifications and uses, the industry's sales presentation, a government controls symposium, and addresses by prominent speakers.

The convention opened Monday afternoon, October 29, with Joseph F. Battley, NPVLA president since 1947, presiding at the welcoming session. Immediately following, Dr. F. G. Weed, NPVLA vice president, took over the chairman's job.

Speakers at this session included Mr. Battley, Wallace F. Bennett, U.S. Senator from Utah, and Leo M. Cherne, executive secretary, Research Institute of America.

In his report to the convention, President Battley (who was reelected for a 3-year term) brought out that the Association had a net gain of 84 members since their last annual convention. "This healthy increase in membership, I am confident," said Battley, "will continue through the coming years. . . .

Emergency service bureau established

"Immediately following the outbreak of hostilities in Korea, an emergency bureau was established in the Association's national headquarters. . . . That service, if necessary, will continue to expand throughout the period of the emergency. Of equal importance is the cooperation and assistance rendered the federal agencies through our Association. . . .

"For our part, we are operating on the premise that government controls are essential under existing world conditions and that industry must cooperate closely with the government agencies for their successful application. And let me state emphatically that *NPA is doing its level best to assist rather than hinder industry during these days of scarce materials. . . .*

Raw material supply remains good

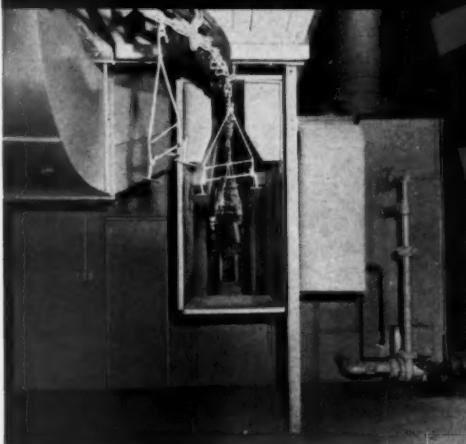
"Your Association has just completed an industry-wide survey of the raw materials situation. . . . In general, our raw material supply still remains good. . . ."

Necessity of quality maintenance

Before closing his address, Battley stated "Let me bring one more sub-

COMPLETE Finishing SYSTEMS

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Home Freezer Parts at Revco, Inc., Emerging from Mahon Five Stage Cleaning and Rust Proofing Machine and Entering Dry-Off Oven Located Overhead.

Modern Equipment at REVCO, Inc., Reduces FINISHING COSTS... Produces FINER FINISH!

Major units of the Complete Mahon Finishing System at Revco, Inc., Dearfield, Mich., are illustrated here. The System provides for continuous processing through Cleaning, Rust Proofing, Drying, Painting and Finish Baking—all on a single conveyor line . . . it reduces costs to a minimum, and, through better control of each phase of the finishing process, it produces a finer finish. It is another typical example of cooperation on the part of Mahon engineers in planning a system complete in every detail, yet so compact that it occupies a minimum of floor space. Some of the novel features of the system are the new Mahon "Fire-Jet" Heaters on processing solution tanks, and the new Mahon "Hydraire" Flood Sheets in the Spray Booths, which make for improved working conditions. When you are in need of finishing equipment you can't do better than to rely on the recommendations of Mahon engineers, because, Mahon engineers have pioneered development in this highly specialized field for over thirty years . . . they have accumulated a wealth of technical knowledge and practical know-how not available to you elsewhere. See Mahon's Insert in Sweet's Mechanical Industries File, or write for Catalog A-652.

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HOME OFFICE and PLANT, Detroit 34, Mich. • WESTERN SALES DIVISION, Chicago 4, Ill.

Engineers and Manufacturers of Complete Finishing Systems—including Pickling Equipment, Metal Cleaning and Rust Proofing Equipment, Dry-Off Ovens, Hydro-Filter Spray Booths, Filtered Air Supply Systems, and Drying and Baking Ovens; Core Ovens, Hydro-Foam Dust Collectors, Fog-Filters, and other Units of Special Equipment.

MAHON



Paint, varnish and lacquer group meets in Atlantic City

REPORTED BY *Matt Heuertz* • ASSOCIATE EDITOR

THE 63rd annual meeting of the National Paint, Varnish & Lacquer Association was held in Atlantic City's Haddon Hall, October 29, 30 and 31. Highlights of the convention included a panel on military lacquer specifications and uses, the industry's sales presentation, a government controls symposium, and addresses by prominent speakers.

The convention opened Monday afternoon, October 29, with Joseph F. Battley, NPVLA president since 1947, presiding at the welcoming session. Immediately following, Dr. F. G. Weed, NPVLA vice president, took over the chairman's job.

Speakers at this session included Mr. Battley, Wallace F. Bennett, U.S. Senator from Utah, and Leo M. Cherne, executive secretary, Research Institute of America.

finish DECEMBER • 1951

In his report to the convention, President Battley (who was reelected for a 3-year term) brought out that the Association had a net gain of 84 members since their last annual convention. "This healthy increase in membership, I am confident," said Battley, "will continue through the coming years. . . .

Emergency service bureau established

"Immediately following the outbreak of hostilities in Korea, an emergency bureau was established in the Association's national headquarters. . . . That service, if necessary, will continue to expand throughout the period of the emergency. Of equal importance is the cooperation and assistance rendered the federal agencies through our Association. . . .

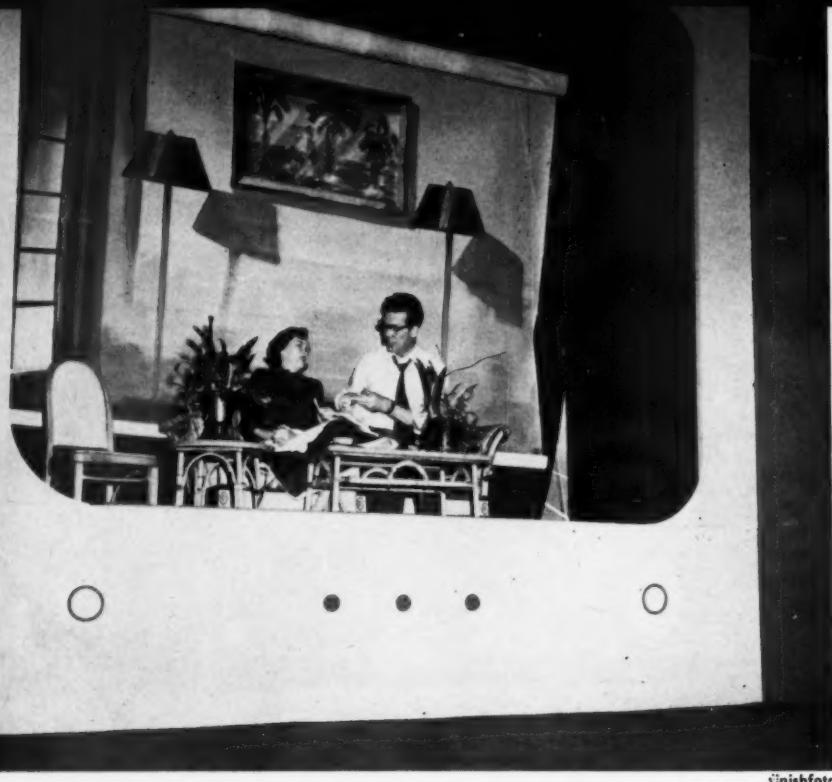
"For our part, we are operating on the premise that government controls are essential under existing world conditions and that industry must cooperate closely with the government agencies for their successful application. And let me state emphatically that *NPA is doing its level best to assist* rather than hinder *industry during these days of scarce materials*. . . .

Raw material supply remains good

"Your Association has just completed an industry-wide survey of the raw materials situation. . . . In general, our raw material supply still remains good. . . ."

Necessity of quality maintenance

Before closing his address, Battley stated "Let me bring one more sub-



During the session on "selling tools for the industry", the world's "largest TV set" carried a program from Station STFSP (sales tools for sales power).

ject to your attention . . . the absolute necessity for maintaining the highest possible standards of quality throughout the industry at all times. . . . We can preserve our prestige only with the hardest kind of conscientious effort aimed at the highest pinnacles of quality.

"Four of your local industrial product finishes committees have prepared reports on 'selling quality finishes' under that division's 'blue print in action' program. They have been consolidated and are being published for distribution. This pamphlet applies equally to trade sales and to every phase of our business.

Building reputation now

"Now is the time to increase every phase of sales efforts, with special emphasis on merchandising and advertising. Now is the time to get your products before the buyers. Build your reputation now, and you will sell your goods when normal times return," stated Battley.

The national picture

Wallace F. Bennett, who attended his first paint convention at Atlantic City 31 years ago, addressed the conventioners on the subject of "The National Picture."

painful road back, through which we will again be willing to assume our personal share of responsibility and be willing to face the consequences of our mistakes and of our government's mistakes? Because to the extent that we have made fundamental mistakes, those consequences are still there. They can be postponed, but, in my opinion, they cannot be successfully evaded. . . .

"The year 1952 should be a year of decision to make our own decisions, a year of decision to take back the responsibility for choice, a year of decision to begin to move out from under the substitution that we have attempted to set up, the substitution of government for ourselves, the substitution of its regulations for fundamental laws.

"During the last two or three years, I have been all over the United States. I have been from coast to coast, from top to bottom many times, and everywhere I go, I have the firm feeling that the American people are stirring, that they are attempting to get back this right of decision. They are disturbed by corruption. They are disturbed by inflation. They are disturbed by all these manifestations of failure. They hardly know what to do. They don't know where to turn, and hardly know how

William Reed told the convention what this country must do to prevent further depreciation of our dollar. He urged a ban on government waste, pay-as-we-go, back the Federal Reserve System, and increase our production of goods.

finishfoto



*Military lacquer panel—
left to right: Dr. C. F.
Pickett, George J. Merritt,
Alfred Malloy, and Dr.
E. E. Jukkola.*



finishfoto

to start—but I think the basic decision is being made," concluded Bennett.

Year of ultimate decision

Leo M. Cherne, in a return address before the convention, spoke on the subject of "1952—The Year of Ultimate Decision."

"Since 1945," stated Cherne, "the American people, without asking for the world, without wanting conquest or a single man's territory, assumed the robes of world power with a dignity, a generosity, and a spiritual strength that stands unique in the history of civilized man.

"I believe we shall have a durable peace yet; the main reason I believe so is because I believe the American people, on matters of crisis, will behave with dignity and strength. I believe we let the Soviet buffalo us, and beginning in 1952, with the year of ultimate decision, we shall re-

capture the capacity to buffalo them, and in so doing assert the will of free men the world over to live in peace and harmony."

Military lacquer panel

Tuesday morning was devoted to a panel on "Military Lacquer Specifications and Uses." The panel consisted of Dr. C. F. Pickett, Chief, Paint and Chemical Laboratory, Aberdeen Proving Ground; George J. Merritt, Quartermaster General Office, Department of the Army; Alfred Malloy, Bureau of Aeronautics, Department of the Navy; and Dr. E. E. Jukkola, Wright Patterson Air Force Base, Department of the Air Force. Moderator for the session was W. O. Bracken.

In his address on the "Use of Lacquers by the U.S. Air Force," Dr. Jukkola remarked that "The bare aluminum appearance of the Air Force's present aircraft has led to

the general impression that there is little use for paints, including lacquers. No longer is the distinctive orange-yellow and light blue of Air Corps training aircraft before the public, and the once familiar olive drab finish of transport and combat aircraft is a rare sight, indeed.

"However," asserted the speaker, "Many manufacturers, when invited to bid on Air Force coating materials, have been surprised at the large size of the orders. Thousands of gallons of a given color of lacquer are requested and, in some instances, tens of thousands, to provide for the anticipated needs for a six-month period.

"The great number of aircraft in service, the large size of some of the aircraft, and the great number of depots or maintenance bases all over the world required to 'Keep 'Em Flying' should bring to mind the possible large quantities of coating ma-

Joseph Battley (right), NPVLA president, introduced the members of the government controls panel who are, left to right: Dr. W. A. Nyland, of NPA Chemical Division; Harvey P. Smith, of NPA Container and Packaging Division; Gregory J. Lanigan, of NPA Container and Packaging Division; Geo. L. Pritchard, of Production and Marketing Administration, Dept. of Agriculture; and John M. Bulkley, of Office of Price Stabilization.

finishfoto



**HARVEY PAUL
SMITH**

**GREGORY J.
LANIGAN**

**GEORGE L.
PRICHARD**

**JOHN M.
BULKLEY**

DECEMBER 1951

PENNSALT CHEMICALS

METAL CLEANING DIGEST

for men interested in Metal Cleaning Economies

U. S. STEEL REDUCES NUMBER OF BATHS, CUTS CLEANING COSTS ON GALVANIZING LINE

Early this year the Galvanizing Shop at the Irvin Works of the United States Steel Company faced a tough problem. They were asked to clean strip steel in their own tanks direct from the rolling mill, instead of having it pre-cleaned first on the tin mill's high-speed cleaning lines. This meant a new cleaning set-up... unless a special product could be developed for this job.

Pennsalt was called in, and a three-way team went to work on the problem. The Pennsalt fieldman, Pennsalt's Whittemarsh Research Laboratories and men from the Irvin Works pooled their knowledge and set about developing a new cleaning procedure.

This wasn't easy, because the galvanizing shop cleaning tanks hadn't been designed to do a double cleaning job.

The first step, therefore, was to develop a special dual-purpose cleaner which would remove two types of soil.

Next the problem of cleaner strength was attacked. The new cleaner had to be strong enough to permit the use of the small capacity galvanizing line cleaning tanks, yet flexible enough to meet the multiple cleaning demands. Such a delicate ingredient balance could only be achieved by a manufacturer of basic chemicals, like Pennsalt.

Within one month from the date this unique cleaning problem came up, Pennsalt chemists made their recommendation and a test was arranged. They proved to be right on the very first try! Adherence tests proved conclusively that the cleaner was doing its job perfectly. In addition, the finished

product came out of the galvanizing shop with more "shine". Rejects due to faulty cleaning were nil. Cleaning costs were significantly reduced and the tin mill cleaning tanks were released for other service.

Zinc Die Castings

Now Free of "Blisters"

Clean, plate, lacquer, bake... that's the cycle used in making radio panels for two of America's leading automobile manufacturers. The panels are made from zinc-base die castings.

But the job platers had a tough time avoiding blisters after baking, caused by minute dirt particles or breaks on improperly cleaned parts.

Then Pennsalt Cleaner Z-54 was tried. This cleaner is especially compounded for zinc-base die casting cleaning. Result—perfect, for all practical purposes. Average 0.1% cleaning rejects, and commendation from the automobile manufacturers for this highest quality work!

For Your Lab Notebook

Why Pennsalt Alkaline Cleaners are Based on Fused Materials

Pennsalt alkalies for metal cleaners are prepared by an economical patented process that produces a fused homogeneous material. Fused alkalies will not segregate in drums—the alkali on the top of the drum is of the same balanced composition as the alkali at the bottom of the drum. Homogeneous composition also means fast, even dissolving of the alkali crystals—no rapid solution of caustic agents while phosphates or silicates drop to the tank bottom and dissolve slowly.

These fused alkalies are used as base materials for the various Pennsalt metal cleaners. Thus the user is assured of minimum alkali segregation, along with efficient, balanced bath composition. Pennsalt is a basic producer of metal cleaning alkalies—this means economies in manufacture which are passed on to the user.



U. S. Steel and Pennsalt engineers observe results of new Pennsalt-developed cleaning process in galvanizing shop.

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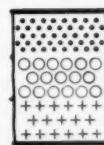
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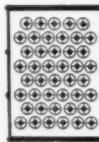
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Progressive Chemistry for over a Century



This shows how the various ingredient particles of ordinary cleaners can shift and settle. (Exaggerated for clarity.)



Pennsalt Alkaline Cleaners are based on fused materials... ingredients are fused into homogeneous particles, which remain uniform throughout the drum.

terials needed to meet any changes in requirements resulting from an emergency situation.

"Aircraft require special finishes of high quality; capable of withstanding abrasion during high speed flight; flexibility at temperatures of -65° or lower as encountered in Alaska or during high altitude flight; resistant to high temperature, to aromatic fuels, to oils, to hydraulic fluids, etc.; exhibiting good weather durability and accomplishing all this and more with a minimum weight."

Dr. Jukkola stated that Air Force finishing requirements are covered by "Specification MIL-F-7179, Finishes and Coatings; General Specification for Protection of Aircraft and Aircraft Parts."

He added that "Contractors are required to submit a finish specification for each contract to indicate the protection against corrosion being

provided for the aircraft and component parts. The protective treatments and materials used in the finishing and coating of aircraft parts shall conform to the requirements of applicable specifications, and any deviations and use of alternate materials or processes must be approved."

In a brief summary of his entire address, Jukkola said that "the extent of future applications (of lacquers) will depend on industry's successful development of materials to meet special needs. Problems such as a coating resistant to rain erosion, a flexible aero-dynamic smoothing material with good adhesion, a heat reflecting coating to provide cooler interior temperatures for parked aircraft, a suitable finish for magnesium surfaces, a coating resistant to ester base hydraulic fluids, a conductive coating for dissipation of static and a durable, clear corrosion protective

coating should offer a challenge."

Jukkola then detailed some of the specifications for anti-glare coatings, camouflage lacquer, enamels for application and maintenance of insignias, radio call letters, identifications and other markings on aircraft, and coatings for many other applications.

Military aircraft coatings

In his talk on "Military Aircraft Coatings," Mr. Malloy stated that "Coatings, which had proved so satisfactory (in the past), lack certain properties necessary to provide optimum performance on the later types of high speed aircraft, and it appears that another cycle of development is about to repeat, except that now specialized products are being engineered specifically for aircraft. The Bureau of Aeronautics, therefore, has initiated certain projects designed to overcome foreseeable deficiencies and is associated with other agencies in a still broader program for the general improvement of organic coatings. In addition, the cooperation of industry has been earnestly solicited with the object of (1) adapting available commercial materials to our needs, and (2) obtaining a critical appraisal of our efforts to develop products of little present industrial use or availability.

"Exterior finish is at present employed on Naval aircraft to prevent corrosion and deterioration of the structure and for purposes of color, identification, camouflage and pilot morale. Lacquer has served the purpose remarkably well, but with the advent of higher and higher speeds, it has become obvious that the present lacquer-primer finish is now inadequate. . . .

"We are taking all possible steps to improve the adhesion by careful attention to surface preparation, cleaning procedures, application techniques, etc. Wash primer is being used to an increasing extent to further improve the adhesion of the present standard primer-lacquer system. . . .

The finish of the predictable future

"The finish of the predictable future for the general airplane finishing

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Porcelain Enamel Institute meets in White Sulphur Springs

REPORTED BY *Dana Chase* • EDITOR

WHITE Sulphur Springs, West Virginia, was the scene of the 20th annual meeting of the Porcelain Enamel Institute. One hundred and twenty-five persons (including almost fifty wives) attended the three-day meeting at beautiful Greenbrier Hotel, held Wednesday, Thursday and Friday, October 31, November 1 and 2.

General sessions were held Wednesday afternoon and Friday morning, and divisional meetings Wednesday and Thursday mornings with the afternoons of Thursday and Friday set aside for recreational activities.

Dadisman re-elected president

The slate of officers and trustees suggested by the nominating committee, headed by R. H. Turk, President, Pemco Corporation, was unanimously approved for election by the group.

Heading the officers for a second term is R. A. Dadisman, Armco Steel Corporation. The four Vice Presidents elected are: W. A. Barrows, Barrows Porcelain Enamel Co., Cincinnati; E. O. Brady, Briggs Manufacturing Co., Detroit; R. C. Myers, U. S. Steel Co., Pittsburgh; and H. H. Wineburgh, Texlite, Inc., Dallas.

Other officers retain their posts. Treasurer is P. B. McBride, Porcelain Metals Corporation, Louisville; Past President, F. L. Meacham, Crosley Division, Avco Manufacturing Corp., Cincinnati; Managing Director, Edward Mackasek, PEI, Washington, D. C.

John C. Oliver, formerly assistant managing director, was elected Secretary with headquarters at the Washington office.

There was keen interest in the dis-

cussion of the economic outlook as covered by Louis J. Paradiso, Chief Statistician, Office of Business Economics, Dept. of Commerce, in a presentation entitled "Factors in the Supply and Demand for Consumer Goods," and in current and projected statistics related to home appliances and porcelain enameling presented by PEI President Dadisman (see "Big Game Hunting", page 53, November finish).

The theme of the President's address and for the meeting was "Building a Better Future". One interesting remark by Mr. Dadisman should be recorded. He said, "Barring all-out war, we expect to be out 'peddling' steel by the first of 1953."

In reporting on the economic picture, Mr. Paradiso referred to a rising defense program with a total of

defense orders placed for military supplies amounting to "close to 50 billion dollars." New authorizations for the fiscal year 1952 total about 71 billion dollars. Most procurement orders are for "military hard goods"—such as airplanes, tanks, ammunition and electronic equipment. The current rate of delivery of military supplies is at an annual rate of 20 billion dollars or "about half of the total defense expenditures. Next year should see total 'defense expenditures' of 60 billion dollars."

Mr. Paradiso summarized the situation by stating that an increased demand for most consumer durables may be expected—a demand well above the permitted rate of output. He warned manufacturers of appliances and similar metal products not to expect improvement in allocations of materials for the balance of 1952 (*over first quarter allotments*).

Three points highlighted Mr. Paradiso's conclusions:

1. A high level of activity for 1952
2. A reduction in inventory levels
3. A greater demand for consumer durables than the probable rate of production.

Committee activity continues

Edward Mackasek, Institute Managing Director, reported an active and fruitful year for all of the working committees (see "*Turning the Wheels of a National Trade Assn.*," October finish), and presented detailed results for the majority of these groups.

Individual committee reports were presented for the Market Development Committee and the New Uses Committee. G. L. Hutt, Ferro Corporation, reported on "Market Development Plans" and D. H. Malcolm, Arco Steel Corporation, reported for C. P. Lohman, chairman on "New Uses for Porcelain Enamel."

The current level of Market Development activity is to be maintained during 1952 according to Mr. Hutt.

The committee expects to "Keep the advantages of porcelain enamel before present users" and "Acquaint designers with its properties." The market development committee is developing a "35 mm. Film" to tell the story of Porcelain Enamel—a quarterly "Building Magazine" is to be continued, and expanded—a "Sign Exhibit" will be developed for con-

vention use—a "College Program" will include the use of reprints and manuals—the "Speakers' Bureau" will work with schools and organizations—a new "P. E. Label" is in the design stage—the "Frit Group Exhibit" will be continued at the annual ICHAM meeting—and—editorial material will be developed for leading metals, architectural and building magazines.

We must "get out and sell," said Mr. Hutt. "The last part of 1952 will call for some real selling. With stainless steel, aluminum, plastics, glass and new competing finishes all in competition we must advertise to the design engineer to avoid a trend to competition," he said.

Mr. Hutt referred to the continued expansion of appliance manufacturing facilities and suggested the necessity of training the *retail* salesman through a quarterly direct mail "correspondence course."

A new booklet for Institute members outlines "101 New Uses for Porcelain Enamel," pictures and describes them, and outlines market possibilities. The booklet is the product of Mr. Lohman's committee.



In speaking to PEI members for the new uses committee Mr. Malcolm said, "Some of these days we are going to get back into competitive selling."

"One of the biggest contributing factors in the *apparent* lethargy on the part of industry members is a lack of definite (*product and market*) information."

The "101 New Uses" booklet to be distributed immediately to PEI members includes 5 points of information on each of the "new uses": (1) Product Name, (2) Product Description —copy and photos, (3) Outline of service conditions, (4) Advantages of P. E. for the product, (5) Description of the market, and (6) Distribution channels.

As a second step in the "new uses" program, Edward Mackasek, Institute Managing Director, is to serve as the "catalytic force" to expedite the program and offer expert technical service to the member manufacturers.

Progress of the PEI "Curtain Wall Project" (architectural division) was reported by William Lescaze, architect selected by the division for con-

ducting the curtain wall study currently in progress. Mr. Lescaze referred to his assignment as "One of the most challenging jobs we have in our office"—"the possibilities are enormous." He commented favorably on "performance standards" as a basis for building codes and building regulations.

National defense gets attention

The entire morning session on Friday, November 2, was devoted to problems related to National Defense.

P. M. McBride, Porcelain Metals Corporation, served as session chairman with a meeting theme of "National Defense and the Porcelain Enamel Industry." Speakers for the meeting were F. R. Nagley, Bureau of Ships, U. S. Navy; Lt. Col. R. A. Jones, Wright Air Development Center, U. S. Air Force; E. W. Dany, Ferro Corp.; and Walter J. O'Donnell, Director of the Office of Small Business, Reconstruction Finance Corporation.

Corrosion resistance at sea

Many enamel industry members are familiar with Mr. Nagley through personal contact, and as a result of

papers he has presented before the PEI Forums for plant men. His subject was "Porcelain Enamel on the High Seas." He reviewed work that has been done by the Bureau of Ships in connection with porcelain enamel and ceramic coatings, and offered some specific suggestions for industry development work related to structural applications and resistance to corrosive elements. He reiterated an earlier suggestion that conclusive tests be developed to demonstrate the corrosion resistance and "fire proofing" qualities of P. E. as a structural material.

Lt. Col. Jones is well known to all who have worked with the problem of high temperature ceramic coatings. In his talk, "Porcelain Enamel in the Air," this speaker stated that while ceramic bodies show greater promise for rockets (5 to 7,000° F.), ceramic coatings are showing excellent possibilities for use on many other "high temperature" parts. Included in the latter group are: Tailcones (temperatures as high as 1,800° F.), combustion chamber inner liners, gas turbine engine and turbo jet parts, etc.



the Finish candid camera





Photo taken at annual banquet of the Porcelain Enamel Institute.

Greatest progress has been made with the reciprocating type engine. Supercharger nozzle boxes, for instance, must stand from 1,800° F. to 1,900° F.

Most of the coatings used are in the range of 1 to 2 mils thickness.

Col. Jones said that an effort is being made to develop a simple testing program to eliminate the necessity for actual "in plane" tests.

Earlier in the program high temperature resistance was the chief concern. Now replacement of strategic materials (*metals*) is equally important. There is a "big future in critical materials reduction through the use of ceramic coatings," Col. Jones believes.

Specifications have been avoided to date. Solar and Bureau of Standards coatings are being used successfully, but others may be used if they afford equal performance results. "Adherence" and "degree of protection" (*for specific metals*) are the factors of first importance.

Furnaces for defense

Although there are 600 enameling furnaces in the U. S., Mr. Dany suggested that it is not practical to consider alternating use between peacetime application and defense work.

Box type furnaces "are ideal for conversion 'over night' (*seven days*) to heat treating," he said. "Controlled

atmosphere batch type furnaces can be established with a packaged unit."

Continuous furnaces are excellent for hardening and drawing. They must be changed inside and outside, resulting in weeks of down time.

At present, furnace builders have 40 weeks of work ahead with insulating firebrick as the chief bottle neck.

Mr. Dany said that in his opinion "enameling furnaces can be operated at 1,850° to 1,875° F. satisfactorily, but refractory life is shortened." He estimated a potential capacity for heat treating in the industry's 600 furnaces of 70,000,000 lbs. of steel per day.

Financing defense contracts

In his talk, Walter O'Donnell complimented the Porcelain Enamel Institute on the fact that over 75% of the loan applications from members have been granted, "from New York to California, from the Great Lakes to the Gulf," and that on none of the loans has the RFC suffered a loss. Loans made to Institute members ranged from a little more than \$5,000 to almost \$2,000,000. The great majority for substantially less than \$100,000 which latter figure is, for RFC purposes, considered a loan to a small business.

In explaining the routine for loan applications, he said, "Every application for a loan presented in any

of our 31 Loan Agencies in the field is carefully scrutinized by a half-dozen or more persons experienced in the various technical and involved aspects of lending. These employees most often working independently, reach a decision and make their several recommendations, whereupon the application and supporting papers are forwarded to the Washington office.

"In Washington this same loan application . . . is again reviewed by a qualified, experienced examiner who adds his considered opinion of the merits to the dossier. This file then goes to a five-man Board of Review which submits a written decision or finding on the case and makes its own recommendation of approval or decline. The application then goes to the Administrator for final action."

Loans by "immediate" or "deferred" participations

Of interest was the speaker's explanation of home bank participation in loans to small business. He said, "We have intensified our efforts to encourage local banks in the applicant's own community to make the loans. Because of statutory limitations, a full portfolio, legal lending restrictions or any other reason the banks may not be able or willing to make the entire loan. In such cases we try to get them to participate with

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Miami Beach theatre has colorful map mural

THE Carib Theatre presents an unusual and colorful mural to those who pass 230 Lincoln Road, Miami Beach, Florida.

Overall dimensions of the building are 30 feet wide and 50 feet from ground to top of curve. The mural is about 30 feet wide by 35 feet high. The entire map, with the exception of the directional star, is of porcelain enamel. The islands are hammered from metal with a maximum relief of four inches. The rolled corner of the map is 30 feet high and tapers from four inches in diameter to 18 inches in diameter, the top section of the wall being 18 inches off the face of the map.

Sea area of the map is finished in a specified matched color, mottled blue-green, with varying shades outlining the islands to indicate depths of water. The small islands of the West Indies are coral; Florida is light yellow; South America is deep tan. It is interesting to note that the Island of Cuba is approximately eight inches long by an average of one inch in width.

Pictorial sections were stenciled in some cases to the face of the map; in other cases were made on separate pieces and fastened to the porcelain enamel after erection. The colors range from three for pictorial to sixteen for the figure of the girl and basket of fruit.

The marquee background consists of five inch high, two-and-a-half inch corrugated porcelain enamel in a coral color. Approximately six inches in front are placed the channel letters CARIB, which are twelve inches deep on the exterior face and two-and-a-half inches deep on the interior face. The letters are fastened to a steel plate on top of the marquee and are braced to the corrugated background, which in turn is fastened to a steel structural framework.

Illumination of the background



panels is ruby red on five inch centers set vertically. This tubing is animated to give a continuous chasing effect. Letters are illuminated with crisscross diagonal strips of 4500° white tubing that flash alternately.

The mural map area is illuminated with flood lights placed on top of the marquee.

Facing of the marquee immediately below the porcelain enameled letters and background is 18-8 #4 finish stainless steel. The round circular items are one inch thick clear plastic discs. This section of the marquee is

illuminated with two strips of indirect fluorescent green tubing.

The attraction panel just below the theatre soffit is standard four-and-a-half line attraction panel facing the exterior and the interior of the theatre.

Enameler: Barrows Porcelain Enamel Co., Cincinnati, Ohio.

Contractor: The Fennell Neon Corp., Miami, Florida.

Architect: Michael J. De Angelis, New York City and Rochester, N. Y.

Photo courtesy Armco Steel Corporation.



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AGA holds convention in St. Louis

Gas Appliance Manufacturers install new officers



Newly elected AGA president, George F. Mitchell, receives congratulations and good wishes from D. A. Hulcy, president for 1951.

A great conversion-plant system to fortify and coordinate U.S. fuel supplies by using the nation's immense coal reserves to produce gas of uniform quality for peak-load requirements was proposed here today by Frederic O. Hess, retiring president of the Gas Appliance Manufacturers Association.

Speaking before delegates to the 33rd annual convention of the American Gas Association, Hess challenged the gas industry to "take advantage of the fact that we can make gas from coal, gasoline from coal and oil from coal."

Hess, who is also president of Selas Corporation of America, warned his audience "we do not have enough natural gas or gas lines in the East and North to solve the problem of disproportionate summer and winter supply, of storage and even of the varying burning characteristics of the different types of gas now in use."

The solution could lie in a series of steps that would revolutionize the gas-distribution business and provide

long-range benefits for both industrial and domestic gas users. These steps, he said, would be:

1. Construction of large gas-conversion and standby plants at strategic points along the present natural-gas pipeline system and

L. F. Worth, of Bendix, points to chart showing potential market for gas dryers and how to get it, during two-man presentation "Time's A'Wastin'" at Joint Residential-Commercial and Industrial luncheon. D. C. McDermand, of Hamilton Mfg., aided in the presentation.



"near our huge coal reserves." These plants would be designed to extract from coal a gas containing hydrogen to be mixed with natural gas in order to augment supply, improve combustion performance, and produce a "really interchangeable standby gas" which would perform uniformly throughout a large area.

2. Use of the conversion plants to provide storage capacity for the interchangeable standby gas. Such facilities would enable the industry to keep up with demand as natural gas supplies are taxed by winter weather.

3. Use of excess plant capacity to produce gasoline from coal, especially during summer months when gas demand is comparatively low and gasoline requirements are high.

4. Production of oil from coal—the product to be stored in concentrated raw form for winter-peak standby demands.

5. Use of the conversion plants to make hundreds of valuable chemical materials which, when processed under controlled and mass-production conditions, would help defray the cost of the overall operation.

Clothes dryers entering "golden era" of expansion

L. F. Worth, sales manager, Bendix Home Appliances Division, Avco Mfg. Corp., and D. C. McDermand, of Hamilton Manufacturing Co., co-to Page 48 →



*Equipment: D. A. Campbell,
Eclipse Fuel Engr. Co.*



*Incinerator: J. G. Dierkes,
Bowser, Inc.*



*Direct Heating: F. Donald
Hart, Temco, Inc.*



*Water Heater: J. P. Hutch-
inson, Lawson Mfg. Co.*



*Commercial Equip.: F. A. Lovel,
Detroit-Michigan Stove Co.*

DIVISIONS



*President: Louis Ruthenburg, chair-
man of the board, Servel, Inc.; also
chairman GAMA Gas Refrigerator
Division.*

DELEGATES representing leading gas utility companies and gas appliance manufacturers in the United States and Canada attended the 33rd annual convention of the American Gas Association held in St. Louis, October 15-17.

Mitchell elected president

George F. Mitchell, president, The Peoples Gas Light & Coke Co., Chicago, was elected to head AGA for the coming year.

Other new officers include: 1st vice president, Charles E. Bennett, president, The Manufacturers Light & Heat Co., Pittsburgh; 2nd vice president, Earl H. Eacker, president, Boston Consolidated Gas Co. Edward F. Barrett, president, Long Island Lighting Co., was reelected treasurer.

Gas industry is healthy

In an address which closed his term as AGA president, D. C. Hulcy, who is also president of the Chamber of Commerce of the United States, declared that the gas industry is thoroughly healthy and forward moving. Its method of facing its problems, its

line of advance to new high levels, and the general picture it presents both as a business and as a public-serving institution, proves the gas industry measures up fully to high standards, he said.

"We can take just pride that the gas industry, and closely related industries, have contributed a full share toward raising the standard of living in America," Hulcy said. "During the past five years, from 1946 to 1950, inclusive, the gas utility companies and pipe line companies invested nearly four billion dollars in the purchase and construction of new plants and equipment. During the next five years, from the beginning of this year to the end of 1955, they plan to invest in excess of four and a half billion dollars more," stated Hulcy.

Need million homes yearly

In an address before the convention, Frank W. Cortright, executive vice president, National Association

GROUPS

MANAGING DIRECTOR

*H. Leigh Whitelaw, reelected
as Managing Director and
Secretary.*

*Furnace: Lee W. Rasch,
Security Mfg. Co.*

*Vented Heater: Joseph R. Na-
son, Williams Radiator Co.*

*Air Conditioning: John K.
Knighton, Servel, Inc.*

*"CP" Manufacturers: Julius
Klein, Caloric Stove Co.*





F. A. Lovell: President, Lovell Mfg. Co.



R. B. Myers: Vice President, Lovell Mfg. Co.



Paul F. Neess: Vice President, Perfex Corp.



Gordon Rieley: Vice President, Lennox Furnace Co.



C. S. Stuckenholz: Vice President, W. J. Schoenberger Co.

VISIOAIRMEN

AIR OFFICERS

of Home Builders, stated that the United States will need another million new homes next year if a housing shortage is to be averted.

"Demand for homes will continue to be strong for two reasons," stated Cortright. "Our nation is prosperous and its population is growing. The Bureau of the Census has estimated that our 1960 population may reach 180 million persons, over our present 154 million.

"A gain of 26 million people within the short space of 10 years will require an absolute minimum of 1,000,000 new homes and apartments each year. The industry is ready and capable of such production. However, we must adjust our production to a goal consistent with the materials available and the war effort.

"Our studies show conclusively that we can produce 1,000,000 new homes next year and use only 2% of the nation's total production of steel, 7% of copper, and 1½% of aluminum," Cortright pointed out.



A. B. Ritzenthaler: Vice President, Tappan Stove Co.

2nd Vice Pres.: J. F. Donnelly, marketing dir., A. O. Smith Corp.



GROUARMINEN

Gas Dryer: Wm. E. Julianis, Roberts-Gordon Appliance Corp.

Floor Furnace: Clarence Coleman, The Coleman Co., Inc.

Boiler: H. B. Carbon, Bastian-Morley Co.

Meter, Regulator: W. A. Raub, E. F. Griffiths Co. Lyle C. Harvey, Affiliated Gas Equipment, Inc., reelected.



TREASURER



AGA general promotional planning committee meeting, presided over by Irving K. Peck, committee chairman in 1952.

Clothes dryers

→ from Page 45

operated in a presentation of "Time's A'Wastin'" — a session devoted to the promotion of gas clothes dryers.

Worth stated that automatic clothes dryers have completed their pioneering period. "The dryers have been perfected, and we have reached a 2% saturation. We have started into the Golden Era of rapid expansion and high national sales."

The retail volume of the dryer business in 1948 was 21 million dollars, said Worth, adding that it should reach 130 million dollars for 1951. This is big business, but it is only a fraction of what it will soon be, as we are starting into the Golden Era of the dryer business.

In order to push sales of gas clothes dryers, Worth stressed the

necessity of sponsoring dealer meetings, and placing dryers in key homes of various sales areas.

Must establish need for automatic clothes drying

McDermand said that the first thing to do in increasing dryer sales is to establish the need for an automatic method of drying clothes. "The rule-of-thumb to remember in our retail presentations is that the basic appeal of a gas clothes dryer is not that it has a tumbling drum, or a timer, or a heat control, or that it sells for so many dollars and so many cents, or that it can be easily vented, but that it gives the housewife complete FREEDOM. Freedom from what? From weather worries, from time consuming household tasks, and from downright drudgery."

equipment will keep pace with essential home construction and modernization, with sales efforts directed particularly toward parts of the country which are not affected by government-imposed gas restrictions.

The outlook for *gas refrigerators*, although clouded by materials shortages, is favorable, particularly in terms of top quality models, he said, but it will take time to meet rapidly growing demand for *incinerators* and *laundry dryers*. Dryer production is not likely to keep up with orders.

"There has been a tremendous increase in the call for *industrial gas equipment*," Massey said. "With almost every type of civilian and military production requiring heat-processing, the makers of such equipment are working round-the-clock to produce the goods." Meter, valve and controls manufacturers will be busy.

"Stocks of household durables in our industry," Massey said, "are dropping from an uncomfortably high position to more nearly normal levels."

Both price decontrol and establishment of a positive federal production balance between military and civilian production, Massey stated, would take a lot of the guess-work out of the industry's planning.

Massey urged all manufacturers to accelerate their merchandising programs, pointing out that "in other times of stress, when deliveries were threatened by similar emergency conditions, companies with aggressive sales policies fared especially well."

GAS APPLIANCE OUTLOOK GOOD FOR START OF '52

Aggressive merchandising and production-line ingenuity, without resort to "war emergency" models, will enable the gas appliance industry to meet public demand for gas ranges, water heaters and home-heating equipment in the first half of 1952, Harold Massey, assistant managing director, Gas Appliance Manufacturers Association, has predicted.

Massey told a meeting of the Mid-Southeastern Gas Association that the increased rate of industrial production of all types, a sharp rise in installment buying, and a "break at last in the public's buying apathy" have contributed to a "bullish" outlook for the gas appliance market,

despite materials limitations, corporate and excise taxes and price controls which will prevent the industry from matching its record volume of last year.

"There will be enough *gas ranges* to meet all demands until the second quarter of 1952, when some delivery problems could develop," he said. "These ranges will be built to traditional standards of quality and performance, and there will be no 'victory' models of the type produced during World War II."

Water heaters of all types, except those incorporating storage tanks of copper or monel metal, will be available. Production of *home heating*

Refrigeration, air conditioning show

THE 7th refrigeration and air conditioning exposition was held in Chicago, November 5-7, during one of the city's worst pre-winter blizzards which left a 9" blanket of snow. However, attendance at the show totaled approximately 12,000 persons. The show is sponsored by the Refrigeration Equipment Manufacturers Association.

Those who braved the unseasonal weather were treated to a large display of the latest in refrigeration and air conditioning equipment. While the exhibits were principally in the commercial field, many leading manufacturers displayed appliances for the home, including Chrysler Airtemp, Frigidaire, Kelvinator, and Philco.

Apartment-size freezer

A new appliance introduced for the first time was an apartment-size home freezer. J. C. Gordon, of United Refrigerator Co., said that they received much favorable comment on the 2.7 cu. ft. model displayed. It was indicated, however, that volume production models would probably be of the 3 cu. ft. size.

One-cubic foot refrigerator

Wagner Tool & Supply Co. featured a 1 cu. ft. refrigerator suitable for home or office use. The unit weighs 75 pounds, and has 1/2 cu. ft. of dry storage space.

Antarctica "visitors"

A "stopper" at the show was the booth of Alco Valve Co. Here in a special glass cabinet were three King penguins, which reportedly were

flown direct from Antarctica for the show. The temperature in their cabinet was kept at 45° F. A company spokesman said that the penguins would be turned over to the St. Louis Zoo.

Of interest to retail men were the large number of companies displaying home freezers, room air conditioners and dehumidifiers.

Future of refrigeration in a defense economy

In a special report, W. A. Siegfried, president of REMA, predicted that manufactured goods in the commercial refrigeration industry will slowly tighten up until a peak is

reached in 1953, and then gradually return to normal.

"Commercial refrigeration is vital to America," Siegfried asserted, "not only in time of peace but also in a time of preparation for national defense, and, of course, in time of war."

Refrigeration and air conditioning, or both, are required for processing and preserving about 77% by weight of the foodstuffs consumed by the American people each year. Its importance to the Armed Forces is shown by the fact that without refrigeration, 11 of the 13 items which form a part of the daily rations of the Army could not be obtained in their present form, he added.

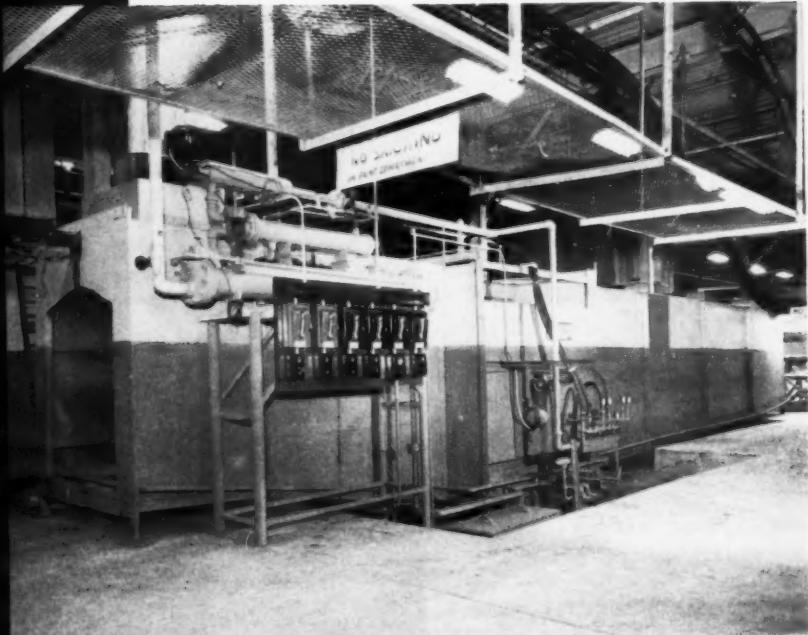


"It's cold inside too!" say Sally O'Neil (Miss Refrigeration), left, and Arlene Williams (Miss Air Conditioning) at Chicago's Navy Pier where 7th refrigeration and air conditioning was held.

the **SPRA-CON** COMPANY

3600 N. Elston Ave.
Chicago 18, Illinois
COrnelia 7-5601

This is the Spra-Con automatic paint applicator now installed at one of the largest washing machine manufacturers in the middlewest . . .



This automatic paint applicator eliminates prime spray booths—air make-up systems—all paint overspray—spray gun operators—maintenance of booths—guns, etc.

Users of this equipment have reported complete amortization within 90 days.

NEWS

SELMA ANDREWS HEADS NESCO CONSUMER SERVICES

Nesco, Inc. has appointed Mrs. Selma Andrews director of consumer services to head all home economics, demonstration, coordination and consumer relations programs, according to Paul H. Hill, Nesco sales director.

Mrs. Andrews was previously director of home economics for Hotpoint, Inc., and prior to that held the same position with the Crosley Division of Avco Manufacturing Corp.

RHEEM NAMES MANAGERS FOR THREE PLANTS

Rheem Manufacturing Co. has announced the appointment of William S. Rheem as manager of the South Gate, Calif., plant; Lloyd Simonson as manager of the Sparrows Point, Maryland, plant, and Harry H. Filler as manager of the Bayonne and the new Linden, New Jersey, plants.

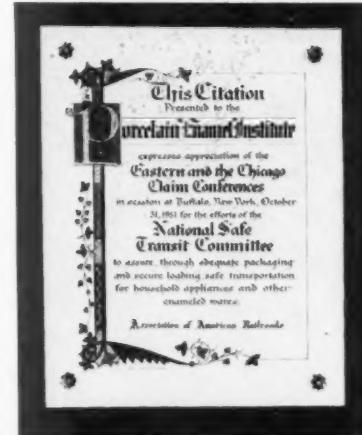
William Rheem, son of Richard S. Rheem, president and co-founder of the company, started his career at the Richmond, Calif., plant, in 1938. He served as an Ensign with the Navy during the last war, and in 1946 rejoined the company at the South Gate plant.

Simonson has been manager of the South Gate plant since 1948, prior to which he managed the Bayonne plant. Filler has held a key part in Rheem operations abroad. After serving in the Australian company, he established the Singapore plant and later the Buenos Aires plant. Until recently, he was in charge of the company's

three South American plants, in Rio de Janeiro, Buenos Aires and Lima.

RAILROAD ASSN. CITATION FOR SAFE TRANSIT PROGRAM

At a recent meeting in Buffalo of the Eastern and Chicago Claim Con-



ferences of the Association of American Railroads, a citation plaque was presented to the National Safe Transit Committee. The plaque was accepted by the NST General Chairman for the Porcelain Enamel Institute, sponsoring organization for the National Safe Transit Program.

The plaque "expresses apprecia-

ARTKRAFT BUYS UNIVERSAL LINE FROM LANDERS, FRARY & CLARK

A new corporation, Universal Major Appliances, Inc., Lima, Ohio, has purchased the Universal line of electric ranges, washers, and water heaters from Landers, Frary & Clark.

The new firm, formed by Artkraft

tion of the Eastern and Chicago Claim Conferences . . . for the efforts of the National Safe Transit Committee." (See story on Page ST-14.)

L&H ANNOUNCES PARTIAL CONVERSION FOR DEFENSE

Johnston P. Scott, vice president, A. J. Lindemann & Hoverson Co., Milwaukee, announced that the firm is converting more of its facilities to defense production.

Scott said a new and completely equipped plant for manufacture of tank track pins is now in operation, using "elaborate induction heating equipment for hardening and tempering" instead of the conventional heat treating methods employing furnaces or salt baths.

He said tooling is also being done, with early production predicted, for manufacture of 20 mm. projectiles to fill a prime-contract awarded the firm. Another contract for tracer hole plugs is now in quantity production.

NATIONAL RADIATOR OPENS NEW FABRICATION PLANT

James F. Thomas has been named plant manager of the new Duncansville, Pa., sheet metal fabrication plant which was formally opened October 18, by The National Radiator Company, Johnstown, Pa.

In making the appointment, B. T. Hain, vice president for manufacturing, said that Thomas had been with the company since 1939. He had previously been president of Century Specialty Co., Johnston, and when that company was merged into National Radiator, Thomas was named plant manager. He continued in this position until the first week of October, 1951, when the Century plant was destroyed by fire.

Mfg. Corp., will manufacture and market this line, in addition to a line of refrigerators previously made by Artkraft for Landers, Frary & Clark, and a line of home freezers.

Morton L. Clark, Artkraft presi-



and PEACE to all peoples...

Mankind's greatest gift is Peace. For in Peace alone is man akin to God. The Spirit of Christmas is the Spirit of the Prince of Peace whose birthday we pause to celebrate. And the language of Christmas—the joyful pealing of bells, the gay laughter of children, the music of carols along the streets, the strains of the organ in church and the voice of the choir lifted in hymns—these are man's most precious heritage. We pray for their return—everywhere, that Christmas may instill new Hope in the hearts of men and bring Peace and Justice to all the World.



PEMCO CORPORATION

dent, will act as president of Universal Major Appliances, Inc. and all other Artkraft manufacturing executives will hold similar positions in the new concern, it was reported. Landers product managers of the transferred lines will hold the same positions with the new firm.

It was indicated that refrigerators and freezers will be manufactured in Lima, with production of ranges and washers by an Artkraft subsidiary in Baltimore.

ALCOA BUILDS NEW FACILITIES IN TEXAS

Aluminum Company of America has announced the building of new facilities at Rockdale, Texas, to pro-

duce 85,000 tons of aluminum annually.

Under agreement with the government, Alcoa will sell two-thirds of the aluminum produced on the open market, minus the amount needed by the government.

DETROIT BRASS ADDS FOUR SALES REPRESENTATIVES

To better serve an expanding market for its products, Detroit Brass & Malleable Works has added four sales representatives, according to Elmer Groves, vice president in charge of sales.

John Wilcox, Jr., with headquarters in Chicago, will cover Iowa, Minnesota and Wisconsin. Thomas

Stevens will cover Ohio, Indiana, Kentucky and Tennessee.

Fred Blackwood will represent the company in West Virginia, Western Pennsylvania, Western New York and the Cleveland area. Lawrence Berman will handle the city of Detroit and the state of Michigan.

JOHN OLIVER NAMED SECRETARY OF PEI

The board of trustees of the Porcelain Enamel Institute, at its recent



STOVE MEN MEET IN CINCINNATI, DECEMBER 3-5

The winter meeting and management conference of the Institute of Cooking and Heating Appliance Manufacturers will be held at the Netherland Plaza, Cincinnati, Ohio, December 3, 4 and 5. The tentative program for general sessions is as follows:

Monday, December 3

- 2:00 p.m.—Annual Report of ICHAM President—by Walter F. Muhlbach, director of distribution and research, Florence Stove Company
“The Steel Supply Picture for 1952”—by R. F. Sentner, assistant executive vice president, U. S. Steel Corp.
Forum on Governmental Regulations

Tuesday, December 4

- 10:00 a.m.—“A Challenge to the Consumer Durable Goods Industries”—by Robert A. Weaver, chairman, Ferro Corp.
“Contract Opportunities for Stove Manufacturers in the Air Force Procurement Program”—by J. S. Imirie, Office of the Assistant Secretary for Air
“The Trend of Price Controls”—by Edward F. Phelps, Jr., Assistant Director, Office of Price Stabilization
12 noon—General Luncheon
“Availability of Materials in an Arsenal Economy”—by Harry J. Holbrook, Director, Consumer Durable Goods Division, National Production Authority
7:30 p.m.—President’s Reception and Banquet
Art Mooney’s Orchestra and the University of Cincinnati Glee Club

Wednesday, December 5

- Conference Day—The Institute will set up five separate conference rooms in which the chairmen of the various management groups and members of the Institute staff will be available for round-table discussions of: top management problems, price controls, CMP and other NPA regulations, salary and wage stabilization regulations, and Government contract procurement.

annual meeting, named John C. Oliver to the post of secretary of the Institute. He previously had been assistant managing director, and was named to this new post in order to assume greater administrative duties in connection with the organization.

Edward Mackasek, managing director, retained his title but has been released from a number of administrative duties to enlarge his liaison work with government bureaus; to increase the technical aspects of his work; and to extend his services in the development of new porcelain enameled products and operating methods.

DUPONT CONSULTANT IS

ASTM V. P.

Dr. Harold L. Maxwell, supervisor of general consultants, E. I. duPont de Nemours & Co., Inc., Wilmington, Dela., has been elected a vice president of the American Society for Testing Metals.

A leading authority on materials, particularly in the field of metallurgy,

only
THE MART
gives you all these
advantages . . .

at the International Home Furnishings Show, Jan. 7 to 18

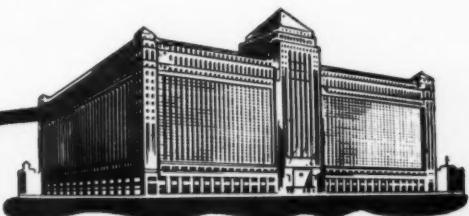
2439 LINES UNDER ONE ROOF

- » 205 lines of furniture and bedding
- » 948 china, glass, pottery and gift lines
- » 471 lines of housewares, appliances, radios and televisions
- » 174 lines of curtains, draperies and fabrics
- » 133 lines of floor coverings
- » 125 lines of toys, games and wheel goods
- » 224 lamps, shades and lighting fixture lines
- » 159 linens, beddings and domestic lines



52-WEEK MARKET CENTER
30 EXPRESS ELEVATORS EVERY MINUTE
EXCELLENT PARKING AND TRANSPORTATION FACILITIES
ELEVEN AIR CONDITIONED MODERNIZED RESTAURANTS
PACE-SETTING HOME FURNISHINGS EXHIBITIONS AND ROOM SETTINGS

The Merchandise Mart
SHOW PLACE OF AMERICA'S BEST-KNOWN BRANDS



Dr. Maxwell joined the duPont company in 1930. He has been active in ASTM work for many years, and was a director of the organization for the three years ending 1950.

FERRO ANNOUNCES THIRD PORCELAIN ENAMEL CONTEST

For the third consecutive year Ferro Corporation, Cleveland, is sponsoring a student contest in porcelain enameling, open to all students, graduate and undergraduate, in ceramic

schools in the United States.

Prizes totalling \$1,000 will be awarded for the best papers dealing with porcelain enamel technology. Awards will be made at the 54th annual meeting of the American Ceramic Society in Pittsburgh, April 27-May 1, 1952.

Judges will be Charles S. Pearce, secretary, American Ceramic Society; Edward Mackasek, managing director, Porcelain Enamel Institute; and B. J. Sweo, director of ceramic research, Ferro Corporation.

TINNERMAN NAMES DISTRIBUTOR

Appointment of New York Brass & Copper Co., Inc., as general distributors of standard flat-type Speed Nuts in the metropolitan area of New York was announced by H. R. Russell, general sales manager, Tinnerman Products, Inc.

WESTINGHOUSE UNDERTAKES HUGE EXPANSION PROGRAM

Westinghouse Electric Corporation is undertaking a \$296,000,000 expansion program extending beyond 1953, according to Gwilym A. Price, president.

The expansion program will be the second such program undertaken since the end of World War II. The first, announced in 1945, was completed in 1948 at a cost of approximately \$150,000,000, and increased manufacturing facilities by 50 per cent.

METALLURGICAL SALES MGR. NAMED BY FOOTE MINERAL

Boyd E. Cass has been named manager of metallurgical sales for Foote Mineral Company. He had been serving as a sales engineer to the metallurgical trade. Originally, Cass was affiliated with U. S. Steel's metallurgical department at Youngstown, Ohio.

"GLASTIC CORPORATION"

Laminated Plastics, Inc., has changed its corporate name to The Glastic Corporation, to correspond with the trade name of its glass reinforced plastics.

The company was founded in 1945 by its president, Roger B. White, working closely with Owens-Corning Fiberglas Corp. and several large chemical companies.

HEADS PLUMBING, HEATING INDUSTRIES BUREAU

Earl E. Brown, secretary, The Chicago Faucet Company, was named president of the Plumbing and Heating Industries Bureau at their 32nd annual meeting in Chicago, Oct. 25.

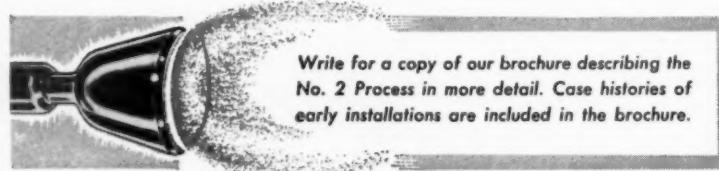


Why, that's almost perfect, you'd say. Practically NO paint loss!

Hard to believe, isn't it? But it's a fact. The new RANSBURG No. 2 Electrostatic Process is making possible new efficiencies heretofore unheard of in the field of spray finishing. In many instances, efficiencies actually exceed 99%!

On most production lines, the RANSBURG No. 2 Process gives 25% to 75% more pieces per gallon than any other spray finishing system.

With the No. 2 Process there's NO overspray to be exhausted. NO compressed air used. NO operator skill required. And, practically all of the many uncontrolled factors in other systems have been eliminated.



Electrostatic Painting Processes

RANSBURG ELECTRO-COATING CORP.

Indianapolis 7, Indiana

RANSBURG

MORSE CHAIN APPOINTMENT

Frank M. Hawley, president and general manager, Morse Chain Co., has announced the appointment of Louis P. Smith as manager of the company's Ithaca, N. Y. plant. Morse

Chain is a subsidiary of Borg-Warner Corp.

Just prior to joining Morse, Smith was in charge of designing, equipping and staffing the new Deepfreeze plant at North Chicago, Ill.

FERRO TO MANUFACTURE AND MARKET SOLAR HIGH TEMPERATURE COATINGS

Solar Aircraft Co., San Diego, Cal., and Ferro Corp., Cleveland, Ohio, have joined forces to combat the critical metals shortages threatening the U. S. defense program.

High-temperature ceramic coatings that may enable low-carbon steels to last as long and perform as efficiently as high-alloy metals are now available to industry through Ferro Corp. The Cleveland producer of raw materials and furnaces for the porcelain enameling industry, has been given exclusive license to manufacture, market, and service the coatings developed by Solar. (See "New Ceramic Coatings for Jet Engine Parts," Oct. 1951 finish).

According to C. D. Clawson, Ferro president, "Use of the ceramic coatings in scores of industries concerned with defense production can greatly reduce the demand for nickel, chrome, and cobalt, since they require no critical materials," Edmund T. Price, Solar president, pointed out that his firm has developed 200 versions of the coatings for metals in both low and high temperature ranges, thus opening a broad field of applications.

Exhaustive tests at Solar's laboratories prove that coated low-carbon steels have equal life and performance as uncoated high-alloy steels. Coated high-alloy steels provide greatly expanded life and performance characteristics, a development of wide interest in all fields where high temperatures are encountered.

Originally developed to protect jet engine parts, the coatings are expected to find applications in many industries. To date, tests indicate that the coatings can be successfully applied to equipment for petroleum fractionating processes, to bearing surfaces on motors working under

high temperature conditions, in industrial furnaces, and in home heating equipment.

ATLAS POWDER NAMES GILRUTH

Atlas Powder Company has announced the appointment of James A. Gilruth as manager of its advertising and sales promotion division.

JONES METAL ANNOUNCES THREE APPOINTMENTS

Frank E. Jones, president, Jones Metal Products Co., West Lafayette, Ohio, has announced the following appointments: Herbert Boyer, vice



the number one name in...

TIMERS



The LUX CLOCK MANUFACTURING CO., INC.

WATERBURY 20, CONNECTICUT

president in charge of sales; L. E. Reed, administrative assistant to Boyer; and R. P. Harner, to new

position of director of sales, Abolite Lighting Division.

the part of dealers, and a modest cut in the prices of Perfection gas ranges.

NEW FERRO CORP.-REPUBLIC STEEL PROCESS FOR COVER COAT ENAMEL DIRECT TO STEEL

A process for applying one coat of porcelain enamel to ordinary sheet steel has been developed jointly by Ferro Corporation and Republic Steel Corporation. C. D. Clawson, Ferro president, announced that a patent has been allowed on the process, which is expected to eventually result in substantial savings for appliance manufacturers and other porcelain enamel users.

The new process permits application of one coat of titania-opacified enamel directly to enameling iron and many cold-rolled steels, eliminating the ground coat and necessity for using premium steels.

According to Clawson, the process involves a unique method of treating the steel. Conventional porcelain enameling techniques are used in applying the enamel. Installation of the new process will not require heavy outlays for additional equipment, Clawson explained.

It is said the one-coat finish, only half as thick as ordinary porcelain enamel coatings, offered increased resistance to impact, heat, thermal shock and torsion, without sacrificing surface, reflectance or color qualities.

The new process has been in commercial use for sixteen months by one of Ferro's customers, Clawson reported, but has not been publicized pending patent approval.

(Press date release to finish)

The new process involves a unique method of treating the steel. The usual steps of cleaning and rinsing the steel in preparation for pickling are followed. A special pickling process, which produces a sharper etch than the conventional sulphuric acid pickle, is used. This process removes more iron than sulphuric acid pickling, and gives a rough surface to the metal. (A sand blasted surface is also satisfactory, instead of the pickling step.)

It is stated that the crux of the new process lies in the treatment of the metal. A nickel deposition process is used which differs from the usual nickel dip in that the deposition action is non-galvanic. In ordinary nickel dipping, some iron goes into solution when the nickel is deposited on the iron.

With the new process, deposition of the nickel is brought about by chemical reduction, so no iron goes into solution. This provides the rough surface needed to give the steel the required adherence quality. By depositing the nickel in this way, the steel is given a more continuous nickel coating. (In the galvanic process, the iron is pushed out of the steel as the nickel is deposited, so the nickel never completely covers the tiny holes where the iron goes into solution.)

Final step in the new process is to rinse the steel in cold water. In conventional pickling processes, the slight acidity of the nickel must be neutralized to prevent rust. But since the nickel is applied more continuously with the new process, rust is not considered a problem and the only rinsing action necessary is to remove the metal treatment salts.

Conventional porcelain enameling techniques are used in applying the enamel to the steel.

GAS RANGES ARE SELLING

In the second week of a special gas range sales promotional campaign, Perfection Stove Company reports a 788% sales increase over the week preceding kickoff of the campaign. The first week of the campaign showed a 581% increase.

J. H. Rasmussen, Perfection's vice president in charge of appliance sales, says these unusual sales increases are the results of a coordinated program, including sales meetings held at Perfection's seven national sales districts, stepped-up cooperative advertising on

HOTPOINT BUYS SITE FOR NEW REFRIGERATOR PLANT

Hotpoint, Inc. has acquired more than 400 acres at Harlem and 95th St., Chicago, for construction of a 1,000,000-square-foot manufacturing plant as soon as defense restrictions permit. Specific use of the projected plant has not yet been determined, said J. J. Nance, president, beyond that it is ultimately planned to give the company expanded refrigeration products facilities.

The new plant will mark completion of a 5-year expansion program announced in 1947 by Hotpoint, and will bring its postwar investment in the Chicago area above \$60,000,000.

MIDWEST ENAMELERS MEETING, DECEMBER 1

Paul Cecil, of The Strong Manufacturing Co., and Don C. Bowman, of Chicago Vitreous Enamel Product Co., will be guest speakers at the Midwest Enameler's Club meeting, December 1, at the LaSalle Hotel, Chicago.

Albert B. Friedmann, program chairman, stated that Cecil's talk is entitled "One Coat White Direct to Non-Premium Steel," and that Bowman's talk is entitled "Fishescale Susceptibility of Enamel-Steel Systems."

NEW COWLES SALES TERRITORY

Cowles Chemical Company has announced the appointment of Don E. Weaver as the company's technical man in their metal cleaner department for their Indiana-Southern Ohio territory.

Weaver attended Ohio State University and the University of Cincinnati before entering production work and enamel and pickle control work for a stove manufacturer in Ohio. Just previous to joining Cowles, he was employed by a large stove manufacturer in New York in a supervisory capacity for metal cleaning preparatory to porcelain enameling.

It's as easy as this... for CROSLEY

Out of our carton



This range with a PERMA-VIEW window is the product
of the Crosley Division of Avco Mfg. Corp.

PERMA-VIEW

... THE WINDOW YOU CAN SEE THROUGH *Always*

Crosley says: "Installation is simple, and the fact that we have few or no service calls related to the windows is evidence of excellent performance...."

"The oven door window is a feature which has a strong appeal to housewives, and it definitely adds to the sales appeal of the ranges in which it is incorporated."

"Use of Perma-View oven door windows in the top model of our 1951 line of Crosley electric ranges has proved eminently satisfactory."

PERMA-VIEW is adding sales appeal to the top lines of more and more range manufacturers. Our engineering department will show you how easily PERMA-VIEW windows can be adapted to your range doors. Phone, write, or wire now.

MILLS ENGINEERING COMPANY
3683 EAST WILLIS DETROIT-7-MICHIGAN

DPA NAMES SCRAP SPECIALIST

Appointment of L. D. Greene, of Bethlehem, Pa., as a Scrap Specialist has been announced by the Defense Production Administration. Greene was associated with Bethlehem Steel Corp. from 1917 until he retired in 1945 as assistant purchasing agent.

EASTERN ENAMELERS NAME NOMINATING COMMITTEE

The Eastern Enameler's Club has announced a new nominating com-

mittee. Chairman of the committee is Herbert Turk, of Pemco. He will be assisted by Fred Campbell, of Armeo, and Bill Donaldson, of Chi-

cago Vitreous.

The next meeting of the Club has been set for January 26, in Philadelphia.

FLEISCHMANN TO ADDRESS PLANT MAINTENANCE CONFERENCE

Manly Fleischmann, administrator, Defense Production Administration, will head a group of 56 speakers in the most extensive discussion of plant maintenance problems ever undertaken, to be held at the Plant Maintenance Conference, Convention Hall,

Philadelphia, Jan. 14-17, 1952, it was announced by Clapp & Poliak, Inc., the exposition management.

The conference will be held in conjunction with the Plant Maintenance Show. More than 14,000 are expected to attend and 225 companies are expected to exhibit.

The displays also will be of record proportions in the field and will cover an area five times that of the first show held two years ago in Cleveland. Special emphasis in both the conference and the exhibits will be placed on preventive maintenance to help meet the huge military and civilian production schedules of next year.

The conference is sponsored by the American Society of Mechanical Engineers and the Society for the Advancement of Management. The American Society of Lubrication Engineers conducts the panel on lubrication.

Highlight of the conference will be the division into more than 30 separate sessions in order to accommodate special talks on individual industry needs and to permit executives to discuss problems that arise in plants of varying sizes and varying maintenance needs.

Industries to be covered separately include chemical plants, metal producing, metal working, aircraft, glass, oil, etc.

Particular problems to be discussed include maintenance of plant buildings, electrical equipment, mechanical equipment, powerplant and service equipment, and materials handling equipment.

General sessions will be on maintenance costs, project preparation, inspection methods, scheduling of maintenance work, training workers and supervisors, personnel, operating policies, safety and plant protection, housekeeping, and welding.

DO YOU USE RUTILE IN ANY QUANTITY?

Then Check

Orefraction Rutiles

(High in TiO₂ Content)

For Their Superior Working Properties

For Use In . . .

- GLAZES • STAINS
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- ELECTRODE COATINGS
- TITANIUM ALLOYS

OTHER PRODUCTS

- Milled Magnetite
- "Fractured" and Ball-Milled Zircons
- "Orelectric" Cements
- "Orwash" Sagger Wash and Refractory Coatings

When you use Orefraction Rutiles you get clean Rutile that is free from contamination and is purity processed to the particle sizes you require—from granular to 400 mesh. Orefraction Rutile makes possible more easily controlled, more stable colors in bodies, glazes and enamels. In glazes and enamels it also promotes acid resistance.

CALL OREFRACTION ENGINEERS

They welcome the opportunity of working with you in your applications which use Rutile and Zircon. Write us your problems.

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7434 Thomas Street, Pittsburgh 8, Pa.

U. OF MICHIGAN PROTECTIVE COATING SPECIALIST TO SERVE AS FINISH TECHNICAL CONSULTANT

The editors of *finish* announce with pleasure that Prof. L. L. Carrick, University of Michigan, has



joined the publication's technical consulting group as advisor on editorial material pertaining to chemistry and organic coatings.

Prof. Carrick has a long and successful record in both industrial research and education. He has an A.B. degree from Valparaiso University, and A.M. and Ph.D. degrees from Indiana University. His educational and research experience includes the following: Head, Science Dept., Princeton, Indiana, High School; Engineer in charge of Storage Battery Research, Prest-O-Lite Co.; Research Chemist, Ault-Wiborg Co.; Asst. Prof. of Inorganic Chemistry, North Dakota Agricultural College, and later Dean of the School of Chemical Technology and Prof. of Protective Coating Chemistry; Captain, Chemical Warfare Reserve; Dir. of Red Lead Research, Lead Industries Association; and Prof. of Chemical Engineering, U. of Michigan.

The new *finish* consultant is the author of many articles for chemical journals and author of some 33 published papers and detailed technical reports. Much of his published work covers problems relating to finishes and protective coatings.

Since 1945, Prof. Carrick has directed the Protective Coating Course as offered at the University of Mich-

igan Dept. of Chemical and Metallurgical Engineering. Registration for the course in organic protective coatings (paint, varnish and lacquers) includes, in addition to United States students, enrollment from the Argentine, Brazil, China, Canada, India, Japan, Mexico, the Philippines and Pakistan. The U. S. students find employment as chemists, engineers, research chemists,

technical sales service men and as potential factory foremen and superintendents.

The protective coatings course is designed to meet the needs of industry, the educational requirements of the University of Michigan, and to give the student sufficient specialized training in one field that he can make the transition from a student to an industrial employee at a higher level. It reduces the plant apprentice time of a young college graduate.

Machined

D

FORGINGS

CASTINGS

EXTRUSIONS

to customer specifications

**For Defense Production or
Essential Civilian Requirements**

Whenever your components are to be produced from brass forgings, castings or extrusions, Detroit Brass is your answer. Whenever brass or bronze metal is specified you are assured quick cooperation and prompt production. Where close tolerances are demanded, where familiarity with government specifications is desirable, call in Detroit Brass—get the advantages of the company's fifty years' growth in brass experience.

DETROIT BRASS & MALLEABLE WORKS
SPECIALTIES DIVISION
DETROIT 9, MICHIGAN

AT YOUR SERVICE IN THE NATIONAL EMERGENCY

The advertisement features a large, stylized graphic of the word "DRAKE" in a bold, blocky font, oriented diagonally. To the left of the main text, there is a small circular logo containing a stylized letter "D". Above the "DRAKE" text, the word "Machined" is written in a smaller, sans-serif font. To the right of the "DRAKE" text, there is a vertical stack of three rectangular boxes containing the words "FORGINGS", "CASTINGS", and "EXTRUSIONS". Below these boxes, the phrase "to customer specifications" is written in a cursive script. At the bottom of the page, there is a large, dark, rounded rectangular area containing the company name and address. This area is set against a background that includes a stylized illustration of a city skyline with various buildings and industrial structures like a bridge and a factory. The overall design is industrial and professional.



At the National Metal Show—held in Detroit recently, exposition crowds saw "production line" spray painting of washing machine tubs, without overspray, at the booth of Ransburg Electro-Coating Corp.

GLOBE AMERICAN HONORS 'OLD TIMERS' AT DINNER

Thirty-five employees of Globe American Corporation, who are members of the company's Old Timer's Club, were given special recognition

at a dinner-meeting of the Globe Management Club, held at American Legion headquarters, in Kokomo, Ind.

Alden P. Chester, president (shown in photo at left), presented watches on behalf of the company to the 35 employees. An employee with Globe for 25 years or more is eligible for membership in the Old Timer's Club.

Edward L. Timme, Globe Management Club president, gave the welcoming address. Another highlight of the program was the recognition given to the honored guests (shown in photo below) by Earl B. Barnes on behalf of Globe's board of directors.



ROBERTSHAW PLANT EXPANSION

A new building construction has added nearly 51,000 square feet area to Robertshaw Thermostat Division, Robertshaw-Fulton Controls Co., Youngwood, Pa.

PROTECTIVE FINISHES

RESEARCH PROGRAM

American Chemical Paint Co., Ambler, Pa., has announced that it has undertaken a research program under contract with the Office of the Quartermaster General.

The scope of the program will be the investigation and development of pre-paint treatments and final chemical treatments of metal surfaces, for the protective finishing of designated Quartermaster articles of supply.

Harry Faigen, of American Chemical Paint, is conducting the studies and the operations of the laboratory established for this government project. Joseph P. Urbanek, of Chemical Plastics Branch, QM Research & Development Division, is administering the technical phases of the work.

GEORGE TUTTLE HEADS

MIDWEST ENAMELERS CLUB

George Tuttle, of Benjamin Electric Mfg. Co., has been elected president of the Midwest Enameler's Club. Other officers include C. M. Swan, vice president; W. K. Burris, secretary-treasurer, and M. B. Gibbs, assistant secretary-treasurer.

NORTON, BEHR-MANNING

FORM OVERSEAS FIRM

The formation of a new firm to be known as Norton Behr-Manning Overseas, Inc. was announced by Norton Company, Worcester, Mass. and Behr-Manning Corp., Troy, N. Y.

The new company will handle all export business and direct the subsidiary plant operations of these two corporations throughout the world. Headquarters will be in Worcester with branch offices in New Rochelle, N. Y. and New York City.

Directors of the new company, who are also directors of Norton or



Check THESE Advantages OF HOMMEL LOWER TEMPERATURE FRITS

- Decreased warpage
- More latitude in design
- No lowering of inspection standard
- Increased production
- Positive adherence
- Perfect cover coat base
- Beautiful acid-resisting whites
- No sacrifice in quality
- Production cost savings with less fuel—lighter gauges

60 Years of Significant Progress

Laboratory Controlled Production of Ceramic Supplies

- FRIT for Steel, Cast Iron or Pottery
- CERAMIC COLORS
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- BRONZE POWDERS
- METAL POWDERS
- SUPPLIES
- EQUIPMENT

Our Technical Staff and Samples are available to you without obligation. Let us help you with your problems.



World's Most Complete Ceramic Supplier

Behr-Manning, include: Milton P. Higgins, Ralph F. Gow, Herbert A. Stanton, Elmer C. Schacht, A. Donald Kelso and Henry M. Elliot.

Officers of the company are: president, Herbert A. Stanton; executive vice president and general manager, A. Donald Kelso; vice presidents, Philip N. Cooke, Paul A. Krumdieck, Frank M. Ryan, Jules A. Schaetzl and Henry J. Sheehan; treasurer, William J. Magee; assistant treasurer, Joseph P. Morano; and secretary, Curtis M. Clark.

FOOTE MINERAL PURCHASES KINGS MOUNTAIN SITE

Foote Mineral Co., Philadelphia, has purchased the plant and holdings of Solvay Process Div. of Allied Chemical and Dye Corp. at Kings Mountain, N.C. This new acquisition, plus land already owned by Foote, gives the 75-year-old mineral com-

pany control of the largest known source of lithium-bearing ores in the western hemisphere. The tract covers 831 acres, includes a complete processing plant, graded access ways, and first class water supply.

The new operation is also expected to yield other ores such as tin, feldspar, and mica.

PILLSBURY HEADS BURDETT SHEET METAL DIVISION

Robert W. Pillsbury has been appointed superintendent of the sheet metal division, Burdett Manufacturing Co., Chicago, in another step of the firm's expansion of oven engineering and building.

Burdett is a pioneer in the "radiant-heat" principle of heat processing in such operations as drying, burn-off, cooking, browning, and general heat processing operations up to 1800° F. (More News Page 70)

MELLON INSTITUTE HOLDS FIRST OPEN HOUSE

At the first open house of the Mellon Institute of Industrial Research, Pittsburgh, Dr. Edward E. Marbaker is shown demonstrating (with aid of a hammer) the durability of porcelain enameled steel at the exhibit of The O. Hommel Company Fellowship. At another demonstration, a porcelain-on-steel sample was bom-

barded with solid steel balls at the rate of one a second, proving shock resistance of the surface.

The Fellowship is devoted to research in chemistry of enamel compositions and the development of improved porcelain enamels, and has been sustained by The O. Hommel Company since 1933.

Details of low pressure spraying

→ from Page 28

coming through the gun in order to atomize properly.

If the old high pressure program had continued when we went from zirconium (45 grams/foot) to titanium (25 grams/foot) we should have been able to increase production by a minimum of 30%; or if operations permitted, cut 30% of operators out. However, fortunate for industry and unfortunate for sake of data and information, the low pressure program and conversion from zirconium to titanium enamels occurred about the same time. As a result, we have reduced the production of the gun and maintained plant production with original personnel. Therefore, advantages were gained from both changes; however, more from material changes than from low pressure technique.

Advantages and conclusions

1. Low pressure spraying could not have been successful with zirconium materials unless additional operators were added. Best results obtained with high specific gravities and low "set". These depending on plant conditions and the end product.

2. High production, specialized department will benefit more than a department that must do equivalent to "job shop" work.

Greater benefits will be derived from a food compartment (inner finish) line than can be accomplished on a range (outer finish) line.

3. Supervision must be sold, make thorough study and train personnel in order to obtain greatest results.

4. Special equipment is not necessary in order to accomplish low pressure spraying. The only change that would help would be an air nozzle that would give the desired width at 8-10 inches from surface of ware when side port control is wide open.

(a) Most air nozzles are now being operated with side port almost completely open.

(b) Sufficient material metering nozzles are now available so that desired delivery can be obtained within the econom-



ical range of present pressure regulators (10 to 20 lbs.)

Recent equipment design is toward larger air passages for resultant less pressure drop through the gun. Also, designing toward lighter weight equipment to cut the fatigue factor. However, none of these are necessary to accomplish low pressure spraying.

5. The ultimate must be maintained in control of all operations, including materials, personnel training, equipment maintenance, in order to

obtain maximum efficiency. This is proven in production by substituting automatic equipment over manual operators.

6. Actual production ability of the spray gun has been decreased and the ware production is in direct proportion to the relative amount of delivered enamel applied.

7. We feel that savings from 45 gram enamel vs. 25 gram enamel is attributed directly to titanium enamel development.

Authors acknowledgment:

I wish to acknowledge the cooperation of those who have furnished partial data and discussed this subject prior to publication.

Acknowledgment also goes to E. Gustafsson and B. J. Hedger for their assistance in preparing this article.

Adapted for finish from a paper before the Central District Enameler's Club.

PEI annual meeting

→ from Page 42

us in the loan. This loan-sharing is effected by two kinds of participations — immediate and deferred. In an *immediate*, the bank makes and services the loan and the Corporation purchases an agreed percentage of the disbursement; or conversely, the Corporation makes and services the loan with the bank purchasing its agreed share. *Deferred* participations are those in which the Corporation and a bank execute an agreement under which the Corporation will purchase, upon demand by the bank, and pursuant to the terms of the agreement, a fixed percentage of the unpaid balance of the loan up to 60 or 70 percent depending on the amount of the commitment. Small businesses, especially those whose accounts represent a substantial portion of the deposits of the local banks in their communities, could in many instances make it much easier to receive aid from the RFC if they could somehow prevail upon those with whom they carry on their day-to-day banking activities to explore fully the possibilities of working out with the Corporation some plan to make available the financial assistance they need."

In his closing remarks, Mr. O'Donnell said, "Provision is made for loans or advances to small business to finance almost every phase of production—plant construction, acquisition of land, facilities equipment and supplies, research work and technical laboratories. Upon recommendation of the Administrator of Small Defense Plants Administration, the RFC is granted the authority to determine the terms, conditions and maturities

POROX
Patterson

...for CLEAN Enamel Grinding

● Uncontaminated, perfectly-ground enamel is the invariable product of Patterson Mills lined with pure white POROX blocks ... grinding with pure white POROX balls. Lower grinding costs are also part of the picture. POROX is hard, dense, tough—wears longer! Compare the performance, in your mills.

Richard L. Canooy
President

The Patterson Foundry and Machine Company

East Liverpool, Ohio, U. S. A.

NEW YORK, BOSTON, BALTIMORE, PHILADELPHIA, PITTSBURGH, DETROIT, CINCINNATI,
CHICAGO, ST. LOUIS, HOUSTON, DENVER, LOS ANGELES, SAN FRANCISCO, SEATTLE

The Patterson Foundry and Machine Company, (Canada) Limited

Toronto, Canada

MONTREAL

of the loans and advances provided for by the law."

Safe transit program lauded

The National Safe Transit Program for reducing packaging and shipping losses, which is sponsored and coordinated by the Institute, was lauded by President Dadisman as one of the most effective developments with which the group is associated.

A. L. Green, Special Representative, Association of American Railroads, spoke to the group on "Building a Better Future Through Safe Transit," and paid high tribute to Safe Transit Chairman Ralph Bisbee and other members of the Safe Transit coordinating committee as well as to the PEI for its generous sponsorship of a program affecting a broad group of appliance and metal products manufacturers.

Greenbrier again in '52

Soon after the PEI members and their wives boarded trains and cars for their departure, the weather man started laying a light blanket of snow over the West Virginia mountains to signal the close of the meeting, and the rapidly closing season at White Sulphur.

According to an announcement by PEI executives, the 1952 annual meeting will be held at The Greenbrier on Wednesday, Thursday and Friday, October 22, 23 and 24.

Paint industry meeting

→ from Page 37

schedule should be scuff-resistant to withstand the inevitable mishandling, foot traffic on the paint, and generally rough usage by maintenance personnel in the fueling and maintenance of the aircraft, particularly under combat conditions. Also, outstanding adhesion is a must, in order to resist the excessive vibration, oil-canning and other influences which result in removal of the current lacquer finish in service.

"The finish should have less weight than the present finish, have a minimum durability of two years before incipient failure, have universal applicability to a variety of aircraft

structural materials, and require a minimum of surface pretreatment or preparation. . . .

"For hull bottoms, a finish is needed which will withstand soaking in water for several months, without any impairment of adhesion or film properties, and which will withstand taxiing through water at high speeds. The incorporation of anti-foulants to resist marine growth and barnacle attachment is a very important additional requirement.

"For leading edges, a highly extensible finish, with instantaneous rebound, having outstanding adhesion to plastic and metal, and embodying an anti-corrosive primer in the case of the metal finish, is needed. . . .

"If any companies not now participating believe they can contribute to the solution of the problems I have discussed, their cooperation will be highly welcome. Offerings should be submitted direct to the Naval Air Experimental Station, Philadelphia,

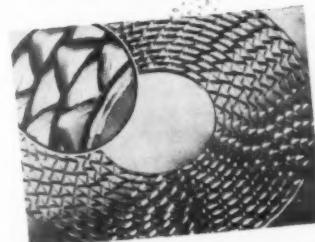
Why pay for **IRON SPOTS?**

"Prevention is Cheaper"
with the

FRANTZ FERROFILTER



Enclosed pipe-line type
FerroFilter sizes range
from 1" to 3" IPS.



A FerroFilter grid. Magnified inset shows collected particles on grid edges.

On clean, iron-free enamel slips depend the sparkling enamel finishes that are so necessary for your finished products. Failure to eliminate iron contamination invariably costs you money—results in product rejections or lowering of grade.

YOU HAVE A CHOICE!

The electromagnetic pipe-line separator shown above fits into your dip tank circulating system and your liquid transfer system to supply you with the lowest cost finish insurance you can buy.

The Frantz FerroFilter offers the maximum in design simplicity, convenience, and real dollar saving economy that our experience as leading magnetic separator manufacturers has enabled us to put into it. The quality is backed by an unchallenged reputation and high performance records in leading plants all over the country.

Prove it for yourself! Have spoilage costs drop, production increase and rejects rare as a January heatwave—with the Frantz Electromagnetic Ferro-Filter.

Gravity type FerroFilters are available where a closed system is not required.

For further information
send for Bulletin No. 54

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1204

Pennsylvania," concluded Malloy.

Ordnance lacquer specifications

Dr. C. F. Pickett discussed "Army Ordnance Lacquer Specifications." (*For a complete report of this address, see Page 31.*)

The topic of an address by Peyton Ford, Former Deputy Attorney General of the United States, was "Government-Industry Cooperation and the Anti-Trust Laws."

To bring home to his audience

the necessity of following the specified and precise methods as set forth in the Defense Production Act, Ford cited the *Madison Oil* decision, 310 U. S. 150, 225-228, decided by the Supreme Court in 1940. The business community was there admonished that it may not avoid responsibility even where collaborative action is taken under Government exhortation and where limited statutory immunity from the anti-trust laws is provided.

Ford pointed out that "the *Madison Oil* decision and its admonitions are particularly important today when businesses are once again collaborating closely with the Government and with each other. They stand as a reminder that transgressions under emergency or mobilization conditions, like violations in normal times, give rise to anti-trust liability. This case teaches that no urgency for co-operation among industrial groups is so great, and no motivation for industrial cooperation so salutary, that anti-trust liability is avoided. That is why it is extremely important that you follow the specified and precise methods as set forth in the Defense Production Act and the applicable rules and regulations promulgated thereunder.

"Businessmen and their companies may cooperate only to the extent and in the manner specifically authorized by law. Neither informal assurances from Government officials, nor well meaning intentions by private persons to implement some Government policy, are enough. Only precise conformity to the requirements laid down by the Congress and assiduous adherence to the regulations established by properly authorized Government officials will provide anti-trust protection. Once this protection is gained, however, and so long as there remains a determination to conform to applicable requirements and conditions, the American businessman can participate in Industry Advisory groups in concert and with safety," concluded Ford.

Tuesday afternoon was devoted to "Selling Tools for the Industry—A Dramatic Stage Presentation." Included were reports on the industry's "Clean Up—Paint Up—Fix Up" campaign, a discussion of the "Industry Cooperative Advertising Program," and a skit presentation on the usefulness of the new "Paint Power Sales Training" book.

Another highlight of the afternoon was an interesting discourse on "Your Money is What you Make It," by William K. Reed, of the National Association of Manufacturers.

Controls symposium

A "Government Controls Sympos-

DECEMBER • 1951 finish

sium" was held Wednesday morning. Participants in this panel included: Dr. W. A. Nyland, Chief, Protective Coatings Branch, NPA Chemical Division; Harvey Paul Smith, Assistant Chief, Metal Container Section, NPA Container and Packaging Division; Gregory J. Langan, Chief, Steel Drum Section, NPA Containers and Packaging Division; George L. Prichard, Director, Fats and Oil Branch, Production and Marketing Administration, Department of Agriculture; and John M. Bulkley, Assistant Director, Industrial and Manufactured Goods Division, Office of Price Stabilization.

Purpose of Munitions Board

C. W. Middleton, Vice Chairman, Munitions Board, Department of Defense, For Production and Requirements, presented the last address before the convention adjourned.

"The Munitions Board," said Middleton, "is responsible for co-ordinating and unifying the procurement and production programs of the three military departments and fitting these programs into the civilian economy of America, as well as planning for industrial mobilization. Here the civilian agencies of the government, meaning the Office of Defense Mobilization and the National Production Authority, have their contacts with the Military. The Munitions Board is responsible for telling the civilian agencies of government not only what the Military will need but when they will need it. It recommends to the civilian agencies the controls that it considers necessary to obtain for our fighting men the necessary implements of war to protect this country . . ."

Procurement principles

The principles to be applied in carrying out the procurement program were outlined in what is usually referred to as a "broadening the base" policy. The principle provisions of this policy, as listed by Middleton, are as follows:

1. Contracts are to be spread across industry as widely as possible.
2. Additional contractors are to be used whenever time permits, instead

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PAINT BONDING

"GRANODINE"® forms a zinc-iron phosphate-coating bond on sheet metal products—automobile bodies and fenders, refrigerator cabinets, etc.—for a durable, lustrous paint finish.

"LITHOFORM"® makes paint stick to galvanized iron and other zinc and cadmium surfaces.

"ALODINE",® the new ACP protective coating chemical for aluminum, anchors the paint finish and protects the metal.

RUST PROOFING

"PERMADINE",® a zinc phosphate coating chemical, forms on steel an oil-adsorptive coating which bonds rust-inhibiting oils such as "Granoleum."

"THERMOIL-GRANODINE"® a manganese-iron phosphate coating chemical, forms on steel a dense crystalline coating which, when oiled or painted, inhibits corrosion.

PROTECTION FOR FRICTION SURFACES

The oiled "THERMOIL-GRANODINE" coating on pistons, piston rings, cranks, camshafts and other rubbing parts, allows safe break-in operation, eliminates metal-to-metal contact, maintains lubrication and reduces the danger of scuffing, scoring, galling, welding and tearing.

IMPROVED DRAWING AND COLD FORMING

"GRANODRAW"® forms on pickled surfaces a tightly-bound adherent, zinc-iron phosphate coating which facilitates the cold mechanical deformation of steel, improves drawing, and lengthens die life.

Send for descriptive folders and Government specifications chart on the above chemicals. Write or call for more information on these products, and advice on your own metal-working problem.

Pioneering Research and Development Since 1914
AMERICAN CHEMICAL PAINT COMPANY
 AMBLER, PA

Manufacturers of Metallurgical, Agricultural and Pharmaceutical Chemicals

GAY NAMED ASA PRESIDENT

Roger E. Gay, president of The Bristol Brass Corp., Bristol, Conn., has been elected president of the American Standards Association.

Gay is the tenth president of the 33-year-old association which is a federation of 110 technical societies, trade associations, and 2200 individual company members working in national industrial, engineering, safety, and consumer standards.

LINK-BELT UPS BECHERER

Robert C. Becherer has been elected executive vice president of Link-Belt Co. with headquarters at the firm's executive offices in Chicago.

Becherer was elected vice president last March. He joined Link-Belt in 1923 and has been general manager of the company's Ewart plant in Indianapolis since 1947. He will be succeeded in that capacity by Richard E. Whinrey, formerly assistant general manager at Ewart.

TWO VITRO STAFF ADDITIONS

Announcement has been made of the addition of Wilbur Paxton and John Philbin to the staff of Vitro Manufacturing Co.

Paxton, formerly with Cooper Bessemer Corp., has been assigned to Vitro's raw material control department. Philbin, graduate of the Chemical Department of Duquesne University, is working in the firm's control and development laboratory.

Vitro, with headquarters and main plant in Pittsburgh, makes colors and chemicals for the ceramic industries.

DESIGNERS NAME ALBERTSON

Designers For Industry, Inc., independent development-design organization, Cleveland, has announced the appointment of William C. Albertson, Jr. as a senior project designer. Albertson was formerly supervisor of the design and development of ceramic industry machines for Schweitzer Equipment Co., and designer of conveyorized machinery, material handling, and special purpose machinery at May-Fran Engineering, Inc. He is presenting engaged in the develop-

ment-design of an Atomic Energy Commission project.

CLAY ELLINGER TO REX MFG.

H. C. "Clay" Ellinger, formerly enamel plant superintendent for Philco Corporation's Refrigerator Division, Philadelphia, is now with Rex Manufacturing Company, Connersville, Indiana. Clay was also president of the Eastern Enamels Club.

'DIAMOND JUBILEE' LINE PRESENTED BY GIBSON

Gibson Refrigerator Co. opened the celebration of its 75th anniversary in New Orleans recently with a presentation of its "Diamond Jubilee" line of refrigerators, home freezers, and ranges.

New models have been added to the line, new innovations incorporated in the appliances, and new merchandising plans prepared and presented to distributors.

KING JOINS PENNSALT SALES-SERVICE DEPT.

Donald A. King has joined Pennsylvania Salt Manufacturing Company's sales-service organization of the industrial chemicals department,

it was announced by Donald McFarlan, Jr., district sales manager. King will headquartered in Detroit and has been assigned to the territory in that area.

JOSLYN NAMED PURCHASING DIRECTOR FOR COOLERATOR

R. A. Joslyn, formerly in charge of purchasing for Reynolds Wire Co., Dixon, Ill., has been appointed director of purchasing for The Coolerator Company, Duluth. He succeeds Floyd Johnson who is now with Sanitary Refrigerator Co., Fond du Lac, Wis.

ELECTRIC HOUSEWARES INDUSTRY TO CONTINUE GIFT CAMPAIGN

The continuation of the electric housewares gift campaign through fall and winter was approved by the Electric Housewares Section of the National Electrical Manufacturers Association. Merchandising of the campaign will continue under the direction of Ralf Shockley & Associates, Inc., New York City. This move marks the second phase of the industry's long-range merchandising and promotional program, aimed at capturing a greater share of the year 'round gift market.

CONFERENCE ON ENAMEL ADHERENCE AT ALFRED U.

Two distinguished professors from Europe were among many prominent participants in a recent special conference on enamel adherence held at the New York State College of Ceramics, Alfred University.

In the photo, left to right, are: Prof. R. M. Barrer, University of Aberdeen, Scotland; Dr. Van Derk Frechette, Alfred U.; and Prof. J.

Benard, University of Paris. Prof. Barrer is a world authority on the subject of diffusion, while Prof. Benard is a world authority on the corrosion of metals. Dr. Frechette is a professor of ceramic technology. The European professors were recent delegates to the Congress of the American Chemical Society.



DECEMBER • 1951 finish



You can add up
MORE PROFITS
with **CENTURY** frits

YES, as you close your books for 1951, you can add up more profits by switching to Century time-proved frits.

Today, more than ever, you will be looking for greater plant efficiency and economy of operation. And enameling plant profits today depend a great deal upon the frit you use.

Plants using Century porcelain enamels continue using our frits year after year. That's the history of Century customers — once they get accustomed to the economical trouble-free operation which Century frits give, they stick to Century.

You too may add up more profits by using Century time-proved frits. We welcome the opportunity of proving our claims.



CENTURY VITREOUS ENAMEL COMPANY

• 6641-61 S. Narragansett Ave., Chicago 38, Ill. •

Strip coatings serve many purposes

(Continued from Page 11)

normally recommended. (The spraying conditions used for varnish and synthetic enamels are normally applicable for strip coatings.) Some formulations will air dry in from one to four minutes, or may be dried in a convection oven or by infra-red in from one-half to two minutes. Maximum hardness is attained in from 12 to 24 hours. (Forced drying time for formulations may run from one to thirty minutes, with maximum hardness being attained in from 8 to 24 hours).

Coating characteristics

Typical formulas will show good adhesion, when applied in accordance with manufacturers' recommendations, and until the surface is inten-

nationally broken for stripping. Resistance to gasoline, oil, fat, grease, acids, alkalis, alcohol and salt spray is attainable. The dry film should not continue to burn or glow after a source of ignition has been removed. Some coatings will give a coverage of from 550 to 600 square feet per gallon, per mil thickness. A typical spray coating for aluminum, low carbon steel and magnesium showed no trace of corrosion when subjected to the following tests:

Salt spray—20% salt spray test for 168 hours.

Humidity—in food cabinet, 100% humidity and 100° F. for 168 hours.

Weatherometer—400 hours.

It is believed that not only will strip coatings find broader use for

This view of the new United States Steel building, in Pittsburgh, shows the use of stainless steel spandrels throughout the structure. All of these spandrels were protected by strip coating, which was removed after the exterior of the building was completed.



the purposes for which they are now employed, but also many new uses may be developed for them, both in connection with normal peacetime plant operation and product manufacturing and in connection with many and varied applications in defense production.

Paint meeting . . .

→ from Page 69

of extra-shift or overtime operations.

3. Open industrial capacity is to be used to the maximum before the expansion of facilities is authorized.

4. The fullest use is to be made of small business, and prime contractors are to be encouraged, or, if necessary, required to sub-contract.

5. Producers are to be given the greatest possible incentives to reduce their costs.

6. Contracts are to be placed to make use of manpower where now available, to reserve special skills for the most difficult production jobs, and to economize on transportation costs.

Middleton concluded that "We are taking the necessary action to see that all current programs are so phased: (1) That we have the production in readiness to support the Armed Forces as requires; (2) That the production lines can be indefinitely maintained in a state of readiness with the nation remaining economically strong."

Army lacquer specifications

→ from Page 31

lacquers on Ordnance equipment is new. It appears very likely that the large use will first appear in production items. However it is entirely feasible that the lacquer system will appear in maintenance operations. Manufacturers carrying out Ordnance contracts should follow out the instructions on the drawings, and if it is desired to change from an enamel to lacquer system they should be sure to obtain the necessary deviation from the contracting officer.

From a Panel on Lacquer Coating Requirements for the Armed Services, National Paint, Varnish & Lacquer Association 63rd Annual Convention, October 30, 1951.



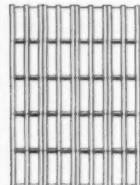
December · 1951

sate transit

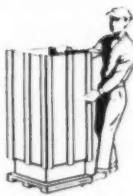
FROM ASSEMBLY LINE TO FINAL CUSTOMER

**Finished Products
ship better in a**

WATKINS CONTAINER



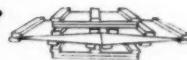
◀ **STACKING** Vertical wood cleats provide exceptional supporting strength to carry heavy loads. Typical crate supports 4 tons.



◀ **QUICK** Assembly line packing is speeded up. Easy to handle. Complete protection for your product.



◀ **STRONG** All wood cleats securely glued to tube-mat. Laboratory tests prove glued cleats resist weave and distortion better.



◀ **STORING** Containers are delivered flat (only 3 sections) and closely nested to conserve storage space.

**THERE IS A
WATKINS
CONTAINER
MADE NEAR YOU**

A Watkins Container provides greater strength, lighter weight, complete product protection, reduced assembly time—and—the "Traveling Billboard" feature.

Scientific design affords strength out of proportion to container weight: strength to carry your product safely . . . strength for stacking to any practical height . . . strength to resist weaving and shock without distortion.

Light in weight, the Watkins Container is quickly and easily assembled to completely enclose your finished product, saving labor . . . saving time . . . saving expense. The container arrives at your plant 75% assembled.

You get complete product protection: protection from outside dirt and dust . . . protection inside for fine product finishes—smooth interior with no staples or rough surfaces to damage the product.

Add to these advantages the "Traveling Billboard" feature (advertising can be printed in two colors on four sides) and you will see why more and more manufacturers of appliances and other valuable finished products are shipping the "Watkins way".

These companies build WATKINS containers

CORNELL PAPERBOARD PRODUCTS CO.

1514 E. Thomas Ave., Milwaukee, Wis.

COZIER CONTAINER CORP.

446 East 131st Street, Cleveland, Ohio

CRATE-RITE MFG. CORP., Division of Pacific Ports Ind. Inc., 10901 Russet Street, Oakland, California

940 East Michigan Street, Indianapolis, Indiana

DURA-CRATES, INC.

Watseka, Illinois

GENERAL BOX CO., 500 N. Dearborn St., Chicago, Illinois, and 16th and Maple Sts., Louisville, Kentucky

811 Center Street, Plainfield, Illinois

HEMB & MARTIN MFG. CO.

1715 West Canal Street, Milwaukee, Wisconsin

ILLINOIS BOX & CRATE CO.

10212 Denton Road, Dallas, Texas

KIECKHEFER BOX & LUMBER CO.

243 Singer Street, Lewisburg, Ohio

LANE CONTAINER CORP.

608 South Commerce Street, Wichita, Kansas

LEWISBURG CONTAINER CO.

—an inquiry to any of these companies will get prompt attention—

The • WATKINS CONTAINER • Manufacturers



safe transit

A monthly trade publication section devoted to improved packaging and shipping and materials handling practices in the home appliance and allied metal products field.

Plant experience information for all executives and plant men interested in the problem of packaging and shipping improvement and loss prevention.

Complete information on the National Safe Transit pre-shipment testing program for packaged finished products, and detailed progress reports of divisions and sub-committees of the National Safe Transit Committee.



Experimental course in packaging — was held recently at Forest Products Laboratory (U. S. Dept. of Agriculture Forest Service), at Madison, Wisconsin, for sales personnel of Kimberly-Clark Corporation. Eighteen members of the sales staff of the company's Industrial Wadding Division took the course which was handled by 12 members of the Laboratory staff. The course covered methods of packaging used by the military as well as standard civilian packaging methods.

Make-up and taping cartons — at Whirlpool Corporation, St. Joseph, Michigan, was increased from 130-140 cartons per hour to 150-170 cartons per hour when a platform was used to raise the worker 6" above the floor. The new position of her arms not only increased her production, but eliminated fatigue.

CONTENTS

BUILDING A BETTER FUTURE
THROUGH SAFE TRANSIT
by A. L. Green ST-5

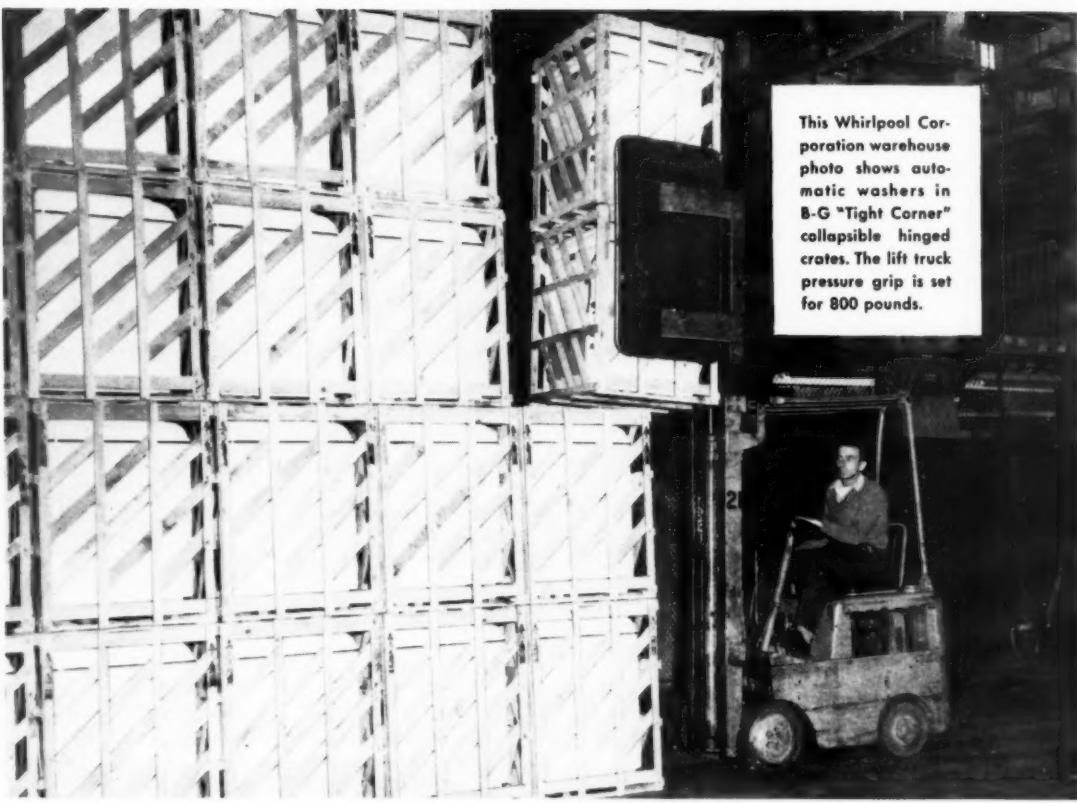
NST TEAM PRESENTS SAFE
TRANSIT STORY TO AAR ST-14

FRIGIDAIRE, O'KEEFE & MERRITT,
CANADIAN G-E, CONTINENTAL
WATER HEATER CERTIFIED BY
SAFE TRANSIT COMMITTEE ST-14

92 COMPANIES, 18 LABORATORIES
COOPERATING IN NST
PROGRAM — complete listing .. ST-16

(Look for a photo story on packaging and materials handling practices at Whirlpool Corporation in the January issue.)





This Whirlpool Corporation warehouse photo shows automatic washers in B-G "Tight Corner" collapsible hinged crates. The lift truck pressure grip is set for 800 pounds.

check

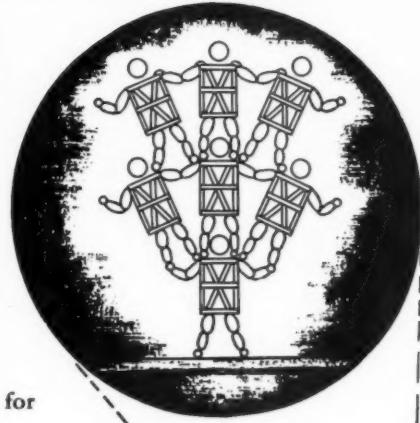
B-G → CRATE STRENGTH

for STACKING ... for HANDLING

B-G "Tight Corner" collapsible hinged crates have built-in strength for stacking—and—strength to withstand all normal handling and transit hazards. They are engineered to carry your particular product safely.

The "Tight Corner" hinged crate is a time-saver too—it comes to you 65% assembled. Just nail top and bottom in position, using factory pre-drilled nail holes.

We will help you find the right answer to your shipping problems for civilian goods or for defense. Write us now and let us show you how to save money and reduce shipping losses.



Manufacturers of washing machines, ranges and all types of home appliances are turning to the "Tight Corner" collapsible crate for assurance of safe delivery of their finished products.



Kraft Crate



Tight Corner Hinge Crate



Pallets



Pallet Boxes



Wooden Boxes



Six Section Panel Crates

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Write for complete details and prices to...



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Building a better future through Safe Transit

by Albert L. Green • SPECIAL REPRESENTATIVE, FREIGHT CLAIM DIVISION,
ASSOCIATION OF AMERICAN RAILROADS, CHICAGO, ILL.

UNIQUE in concept; sound in principle; practical, economical and effective in practice, the National Safe Transit Program, in the short space of three years, has enrolled some ninety manufacturers of home appliances (about 70 percent of volume) and cooking ware.

None of the tests prescribed for the broad range of products coming within the scope of the plan was originated by its organizers. Each test was established, by long years of experience, in government, commercial and industry laboratories as a dependable means for measuring protective qualities of shipping containers. Hence no one has to take on a lot of expensive and time-consuming trial-and-error experimenting. All that has been paid for by some one else.

Only three tools are needed for testing major appliances: (1) a vibration platform for producing vertical impacts like those in motor trucks and freight cars; (2) an incline track on which a platform rides on wheels. This test is to see whether the packaged goods will withstand crushing forces incidental to factory handling, transport, warehousing and getting the product to the consumer at the destination end. (3) A register for measuring impact and vibration.

For small articles weighing less than 100 pounds, the program calls for a drop tester, which facilitates dropping packages to the floor from specified heights to determine whether the boxed article can survive the common hazards of distribution.

These devices are simple and easy to operate. A little intuition enables an average workman to make these simple tests and record results. When

any test causes damage, the foreman or other person responsible for design, fabrication or finish inspects



A. L. GREEN

the damage. A conference often follows to decide how the trouble can be corrected.

A pre-Safe Transit case history

Some years before the Safe Transit plan was even thought of, I worked with a packaging engineer on the crating of an enameled stove. It had been involved in "epidemic" chipping. That stove was on the vibration table in the crate maker's laboratory a half-dozen times at short intervals, before the last "bug" in construction was identified and the framework of the stove redesigned to relieve the tension which had been causing the enamel to chip. Vibration and impact tests duplicating, as closely as test facilities would permit, shocks encountered in man-handling and in transit resulted in a crated stove that ought to carry through to the consumer without damage.

We were then ready for the final

test — carloading. About seventy stoves were loaded in a car according to the loading pattern used by shipper, bulkheads were securely strapped in place, and on a special incline test track the car was run against some heavily loaded cars with brakes set. This was repeated at higher speeds until the test car struck at about 11 mph. At that speed—the car doorway being open—the load was seen to shift a little, and there was a noticeable loosening of the steel straps. But no breakage of crates nor injury to stoves was visible. Later I was present when the car was unloaded. With the factory superintendent I looked at every stove. Not a single stove had been hurt by this violent impact. Only three or four were slightly chipped and they were acknowledged to be manufacturer's responsibility, and could have existed before the test.

The human element in handling

Now it stands to reason that no railroad man would defend car coupling speeds of anything like 11 mph. The ideal we are trying to reach is a maximum striking speed of 4 mph. But that is not always practicable. The rolling resistances of cars differ according to weight on the axle and temperature. In summer cars roll more freely than in winter.

A car just off the road rolls easier. Visibility on dark nights and in storms makes it more difficult to bring cars together at safe striking speeds, and some men are better than others at judging speed. In other words, there is no way to keep coupling speeds within safe limits under all conditions, and at all times. Nor does this differ essentially from er-

rors made in factory or warehouse which we attribute to the human element.

Such being the case, the most painstaking tests upon the packaged product at the factory, however satisfying the results may be, do not—and cannot possibly—answer the question: Will the article stand carload shipping? There is a best way to get the of safety. Do this at the factory answer, to wit, subject a loaded car to switching impacts at speeds high enough to insure a reasonable factor where the effects of each impact can be seen. Change the arrangement of the cases and application of bracing until satisfied that the load will carry. Then check with a few distributors or customers to see whether you hit the nail on the head. If consignee reports damage, see if you can get him to photograph the load so you can put your own interpretation on what should be changed. Do this as often as may be necessary to put cars through consistently without damage.

The claim payment story in dollars and cents

The essentiality of cooperating adequate packaging with safe loading is elementary. Yet this apparently has not been recognized by many shippers. There must be some truth in this statement because damage claims paid by railroads on plumbers' goods averaged \$29.21 per carload originated in the last three years; \$22.96 on stoves; \$9.09 on refrigerators, and \$9.43 on washing machines, tubs, and cooking ware. Those claims were paid on totals of 74,200 cars of plumbers' goods originated in those three years; 150,103 cars of stoves; 347,241 cars of refrigerators, and 145,984 cars of washing machines and other wares.

In the years 1948, 1949 and 1950, a grand total of 717,528 carload shipments of the commodities named were carried by rail and the claims paid equalled 4.17 percent of the gross freight earnings thereon.

Need we labor the point that, if all shipments had been as adequately packed and securely loaded as were those made by some shippers who have given such effective attention to all factors contributing to damage,

Albert L. Green — has spent a lifetime of work in railroad activity — activity in improving the safety and reliability of shipping practices.

He was with the claim department of the New York Central Railroad for 20 years. Immediately following World War I, he was appointed Regional Claim Agent for the United States Railroad Administration.

In November, 1920 he became connected with the Association of American Railroads as Special Representative of the Freight Claim Division, a division specializing in transportation methods for improvement of service and prevention of loss. Next month will mark 31 years with the Association.

For 15 years, "Al" has been in charge of the National Perfect Shipping Campaign of the National Association of Shipper Advisory Boards, aim of which is the improvement of packaging and loading practices and cooperation with shippers.

Years of activity in cooperative work with associations and committees interested in improving shipping practices and reducing damage led to his connection with the National Safe Transit Committee activity. He has offered every cooperation to the NST Committee.

the results would have been very different.

There is something about the need for proper loading that perhaps is not generally understood. When a car moving 6 mph. strikes another car in switching operations, the impact shock is not just 6 times greater than at 1 mph, as many might suppose. Actually, the impact is 36 times greater. That of course is because the destructive force of the impact increases as the square of speed at the time the car is coupled to another car.

While the basic principles for proper loading of commodities in general have been pretty well established, it is recognized that loading rules designed especially for this traffic would be useful to shippers in selecting methods best suited to their products. An illustrated pamphlet of such methods has already been published by the carloading sub-committee of the National Safe Transit Committee; and when certain studies have been completed by our carloading engi-

neers, an A. A. R. pamphlet will be available to all interested shippers.

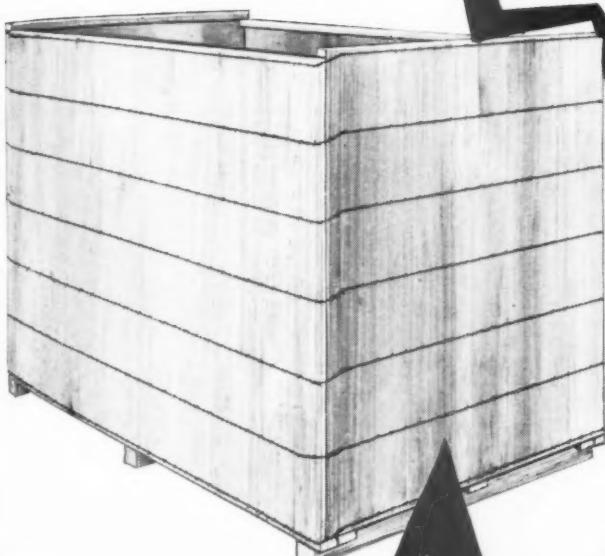
Testing frequency is important

Due to price changes and the sharp ups and downs in the shipping volume of appliances, plus the fact that some manufacturers are testing the packaged product altogether too infrequently — and not giving nearly enough attention to car loading — it is not possible to translate into dollars saved in the form of prevented damage, the over-all benefits to shippers, carriers and consignees of the Safe Transit plan. Nevertheless, shippers making daily or frequent use of all the test equipment — some for many years antedating the Safe Transit plan — report a marked reduction in customer complaints and orders for replacement parts. Retailer's orders could be filled pronto — no waiting for repairs. Customers were more inclined to come back to the "place where they had been well served." As the insurance man put it, losses were stopped before they occurred.

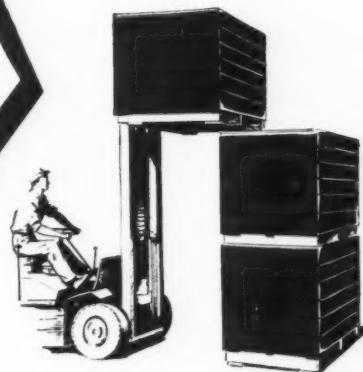
Is it sound business policy to give first consideration to the customer's welfare by getting his orders to him in good shape? Should the emphasis be on pleasing the customer or should this be de-emphasized by keeping packaged costs down to the lowest point, regardless. Let's see what a good merchant has to say about this. In a Reader's Digest article, Mr. Crawford H. Greenewalt, Du Pont's president, said:

"Business growth comes about only through success in pleasing the customer. We have no way to influence him in the exercise of his judgment except to offer a better product or the same product at a lower price. Business success is simply a measure of the votes of thousands of satisfied customers. If they like the product and the price, the business will grow. If not it will fail. It is as simple as that."

How perfectly can fragile merchandise be protected against the common hazards of distribution? In another field of ceramics — chinaware — a recent experience is cited in illustration. In the first quarter of



OR THIS



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- 1 CUT MATERIALS HANDLING COSTS
- 2 SHARPLY REDUCE STORAGE COSTS

More and more cost-minded manufacturers—the country over—are saving with Generalift Pallet Boxes. These versatile containers sharply reduce costs wherever materials are handled or stored. Remember, Generalift Pallet Boxes and fork-lift truck do the work of many employees. And remember also to write us for complete information. Why not do it NOW?

WE WILL MAIL FREE COPY OF "THE GENERAL BOX"

This colorful booklet illustrates and describes the many advantages of the Generalift Pallet Box. We will be glad to mail upon request.



ALL TYPES OF ENGINEERED SHIPPING CONTAINERS

DISTRICT OFFICES AND PLANTS:

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General
★★★★★

BOX COMPANY

engineered shipping containers
GENERAL OFFICES:
1823 Miner St., Des Plaines, Ill.



1951, the Onondaga Pottery Company of Syracuse, New York, shipped by railroad seven carloads of chinaware to its Chicago distributor with breakage of less than \$5.00 in all seven cars. Without the shadow of a doubt certain appliance shippers are doing relatively as well, but we don't have the case records to show it.

The latest L. C. L. claim-payment figures we have are for the first five months of 1951. The comparisons are with the same five months of 1950. Claims paid for plumbers' goods, L. C. L., were down 6.9 per cent; stoves, down 25.3 per cent; refrigerators, down 8.4 per cent, miscellaneous enameled goods, down 1.4 per cent.

What the railroads are doing

Assuming that these figures reflect the experience with approximately the same volume of less-carload traffic moving in the comparison periods,

it seems likely that the better performance this year can be accounted for, in part at least, by the increasingly effective efforts put forth by the railroads to handle small shipments with greater care.

In our training bulletins to the railroads such things as the following are accented:

"When a stove is dropped on one end only a foot, the force with which it strikes the floor is about equal to switching shock in a car striking at 12 mph. Enamelled products must be handled 'with kid gloves'."

There isn't a phase of our less-carload service, so far as the loss and damage risk is concerned, that has not been measurably improved in recent years. Materials handling equipment of all kinds suitable for station service has been bought in increasing numbers, and this has expedited the movement of freight over the platform and into cars. This reduces the number of times a package must be

handled and eliminates much of the handling shock incidental to handling freight the old way. Bulkheads are used to divide the load into three parts, thus transferring to the car structure crushing forces which otherwise pass through the entire load when cars are switched or slack is taken up in train operation. The Safe Transit label on packages is believed to be quite a factor in insuring more careful handling.

To illustrate progress in reducing claims for loss and damage of less-carload shipping, for the year 1948, claims paid per thousand tons originated amounted to \$1,971.66, and for the year 1950, \$1,386.27, a decrease of 29.7 per cent. But when the rise in commodity values is taken into consideration—setting the claim payments back six months to compensate for the time lag between the date of payment and date of shipment—the adjusted payments (on a 1946 price base) were \$1,326.29 for 1948, and \$976.39 for 1950.

It is believed that freight is now better packed than it was immediately after the war, and that the Safe Transit program has been instrumental in aiding the railroads to move appliances with less damage.

The Association of American Railroads employs a Ceramic Engineer, Mr. Clark Hutchison, well known throughout the industry. Mr. Hutchison serves as a consultant to the railroad claim officer who may be unable to decide whether damage in a particular case is due to negligent transportation or a manufacturing defect. It is his practice to inspect the damage, and if apparently there is something the shipper can do to prevent its recurrence, he calls at the factory to offer his assistance. Mr. Hutchison has found that little mistakes and oversights have come to light in the course of his duties—such, for examples, as neglect to tighten or insert bolts, careless assembly, insufficient padding or fastening of doors or parts, poor nailing of crates and bracing, and damaging shocks in warehouse handling and loading or unloading of cars. Too heavy enameling, excessive warpage, design weaknesses, fishscale, spalling and other



THE ONLY SOURCE for ALL THESE QUALITY BOXES *and* CRATES

**For Domestic or Export
For Peace or Defense**

**Nailed
Hinge corner
Wirebound**

**Cleated Plywood or Cleated Craveneer
Cleated Corrugated**

(Sectional, Hinged and Watkins Types)

Our designing and testing laboratory,
supervised by experienced engineers, can assist you with
your packing problems, and is at your service without
obligation.

A National Safe Transit Certified Laboratory

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Plants at: Helena, Arkansas • Greenville, Mississippi • Rockmart, Georgia
Tallulah, Louisiana • South Fork, Colorado • Chicago, Illinois

WHEN YOUR BIDS ON

GOVERNMENT CONTRACTS REQUIRE PLYWOOD CONTAINERS...

When you bid to supply your products to Government Specifications—either directly or through a contractor—you are usually faced with specifications covering the packaging as well. If the invitation to bid calls for packaging in accordance with "NBB-601B, Navy Handbook—Section 9," "JAN P105a," "JAN P139," or any other required specifications, you want to know your costs in a hurry; you want to know that your bid will be based upon the correct interpretation of the container specifications. . . . We invite you to call upon Atlas for relief from these details.

We are today serving the leaders in a great many industries—for both domestic and export shipment. The products thus protected range from small to large, from light to extra heavy; they are

of every conceivable shape. Thirty manufacturing and distributing plants and sales-service offices assure you of service and supply, wherever your plants may be located . . . For the past 22 years we have maintained—in Lawrence, Mass.—what is probably the most complete, company-operated Container Laboratory in the United States.

Possibly you haven't yet had the experience of shipping in plywood containers. When you do need them, or when you bid on Government Contracts, we invite you to call upon our experience, our research facilities and our familiarity with all Government Specifications in the field of Plywoods. Your inquiry involves no obligation. Kindly address it to Department 23.



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VIBRATION TEST

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Musings, Mich.
Newberry, Mich.
Grayling, Mich.
Rhinelander, Wisc.

DISTRIBUTING PLANTS

Lawrence, Mass.
Southbridge, Mass.

Phillipsdale, R. I.
Camden, Ohio

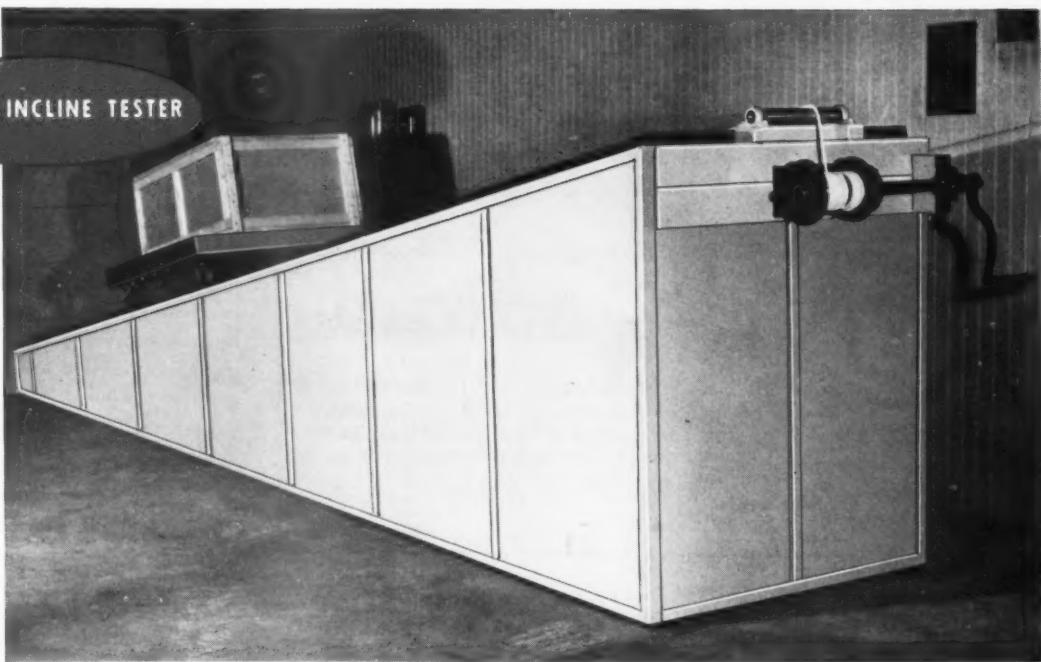
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Pittsburgh, Pa.
Springfield, Ohio
Cleveland, Ohio
Goldsboro, N. C.
Gladstone, Mich.

processing faults have been noticed. At some plants it was apparent that a more alert and critical inspection or "quality control" was the answer.

There have also been differences of opinion between the factory and the consignee as to what should pass inspection in the way of small chips on brushed corners or edges not too noticeable. The shipper says its commercially acceptable. The consignee says its unsalable and rejects the article to the carrier.

Mr. Hutchison is experienced in all the factors that make for good-order deliveries at destination. His services as a consultant are available, without charge, to any plant. Just write in to the Association of American Railroads at 59 East Van Buren Street, Chicago 5, Illinois.

Habit either repeats the same errors every hour, every day, or it repeats doing the thing the right way. It has also been said that good habits are as easy to make and as hard to

break as bad habits. No matter where or by whom employed, some men lack experience or do not clearly understand what is expected of them. Some are indifferent or do the bare minimum; others hate their jobs or are hostile.

Sound employee training is a necessity

Proper handling of appliances is a result of method, training, and supervision. Once acquired, method becomes habit, habit instinct — and good careful habits become as ingrained and as hard to break as careless habits.

"The purpose of all training is to fit the employee to do a better job than he would do without it." It became quite apparent from studies made by the National Safe Transit Committee that the most severe shocks sustained by individual packages were not in motor trucks or freight cars—as many of us had assumed—but in manhandling in the factory and after delivery by carrier at destination. If enamel on a stove cracks when one end of the stove is dropped a foot or more to the floor, and that is the way the stove is habitually handled—instead of easing it all the way to the floor—the men who give stoves that kind of handling will do many thousands of dollars damage in short course. All such habits should be spotted by the supervisor or foreman, wherever they have taken hold, and the consequences of their acts should be made plain to the men.

Clarence B. Randall, President, Inland Steel Company, thinks the responsibility for proper training rests squarely on the man in charge. In an address at a conference held by the U. S. Chamber of Commerce in Chicago last June, Mr. Randall said:

"In educating the employee we encounter road blocks in the persons of the senior supervisor and the foreman. You cannot go around them in communicating ideas to your workers. You must go through them. And by tradition they are not men who ever thought it their business to communicate ideas to anyone."

We on the railroads realize that

FROM YOUR PLANT . . .



TO YOUR CUSTOMER . . .



A. J. GERRARD STRAPPING & TOOLS

**PROTECT YOUR PRODUCT
PREVENT DAMAGE CLAIMS
PARE DOWN COSTS**

FIBER-and-STEEL Strap

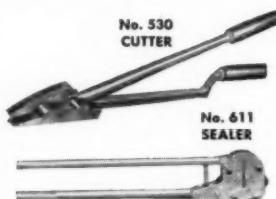


Protects Fine Finishes
Its soft Kraft paper outer layer won't scuff or damage the finest enamel finish. Inner layer of steel strap defies shipping shocks.

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a well-rounded, effective training program for all operating employees is the keystone to good service. We also appreciate that we sell nothing but service; that good service is a great maker of transportation sales and good will.

Recognizing that fact, the railroads of this country and Canada each have their own claim prevention department for searching out and correcting all sorts of conditions resulting in loss, damage or delay to freight.

Each of these departments cooperates with one another, also with nine regional claim conferences, the district weighing and inspection bureaus and the prevention organizations set up in the Association of American Railroads. The Association's Freight Claim Division's membership includes freight agents and loss and damage prevention officers of Canadian and United States railroads, to whom the headquarter staff furnishes at frequent intervals posters and bulletins giving the best obtainable information of claim causes and how to prevent them, as well as the recommendations and results of investigations of its own staff of commodity and operating specialists. A group of engineers in the Association's Freight Loading and Container Section, with the help of shippers and others, work up pamphlets illustrating best methods for loading freight, of which forty or more have been printed to date.

As a result of all this work by the railroads, very importantly assisted by trade associations, Shippers Advisory Boards, technical groups such as the National Safe Transit Committee and shipping supply manufacturers, the amount of claims paid by the railroads was cut down \$46 million in the last three years. Just now, due to higher prices and increased traffic the trend of claim payments is upward, signalling the need for more effective efforts by all concerned to reverse the trend.

"Unique in concept"

I said the Safe Transit plan is "unique in concept." It is. For the first time a group of the country's most important industries got together

under a single leadership, to find out how their products could be put up for transportation so damage troubles would be eliminated or kept down to the lowest economical minimum. Neither railroads nor truckers had a hand in it; in fact, they knew nothing about the committee's plans until they were presented to them. The National Safe Transit Program was received with open arms by the railroads, and it is our confident belief that as its aims and benefits be-

come better known to the manufacturers of appliances and related products more and more of them will adopt the program and use it to their financial benefit.

All praise and thanks to the originators of this program. It has put a great deal of work on the committee, in addition to their regular duties, and we appreciate, particularly, the energetic enthusiasm with which the program has been carried on.

The railroads will continue to co-

WEYERHAEUSER CRATES



SHOCK TESTED TO PROVE STRENGTH

● Crates designed by Weyerhaeuser are built to withstand the impact and vibration tests recommended by the Porcelain Enamel Institute. These tests simulate shocks received in shipment—to prove adequate protection for contents, the first essential in good crating.

Weyerhaeuser Crates are engineered to give needed product protection—economically. Their open design permits easy inspection. Diagonal bracing is 65% stronger

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In 18 years of designing and building, Weyerhaeuser has supplied leading stove manufacturers with superior, engineered crates. Your inquiry will receive prompt and experienced attention.



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operate with the committee in every way they can to improve their handling of these products, and trust that they will always merit the confidence and good will of shippers of such a

large and valuable transportation business.

Adapted for *finish* from an address before the 20th annual meeting of the Porcelain Enamel Institute.

NST TEAM PRESENTS SAFE TRANSIT STORY AT AAR MEETING

A SPECIAL team of key men from the National Safe Transit Coordinating Committee presented the whole story of this cooperative movement for reducing packaging and shipping losses before a meeting of the Eastern and Chicago Claim Conferences of the Association of American Railroads, at the Statler Hotel, Buffalo, New York, October 31. This is the second of a series of programs of this type. The first was before a meeting of the National Freight Claim Council of the American Trucking Association in Detroit (see "ATA *Shipper-Carrier-Receiver Meeting*," Page 69, August *finish*).

As an introduction to the program, Ralph Bisbee, NST General Chairman, presented a 20-minute outline of the background and value of NST and the benefits to both carriers and industry.

The next part of the program included a 40-minute color film in three parts.

Part I of the film was narrated by E. H. Shands, Chairman of the Technical Planning Division of NST. This section of the film describes the Tech-

nical Planning Division's part in the program and spells out PACKAGED PRODUCT as the basis for all tests. Purposes and actual descriptions of the tests were presented in exact sequence and in every detail.

Part II of the film was narrated by Paul Bush, Chairman of the Technical Sub-Committee. This section showed in detail all of the correlation work that the Technical Planning Sub-Committee has done since the inception of the program.

Railroad representatives showed unusual interest in this section of the film.

Part III of the color film introduced the next project planned by the NST Committee — pre-shipment testing of basic carloads. This section was narrated by J. K. Linsenmayer, who has had a big part in the car-loading research work. This activity is being developed in cooperation with the Technical Planning Committee, and in this connection Mr. Shands requested the cooperation of the railroads in working with industry.

Following the NST presentation, Mr. H. H. Young, first vice chair-

man, AAR Freight Claim Division, gave the highest possible commendation to the National Safe Transit Committee and its constructive work.

Forrest Bennett, claim agent of The Hoosier Line, in Chicago, presented to the NST General Chairman a citation plaque in the name of the Association of American Railroads (see photo of plaque on Page 51.)

FRIGIDAIRE GETS NST CERTIFICATION

A press-time announcement states that the Frigidaire Division of General Motors Corp., Dayton, Ohio, has been certified by the National Safe Transit Committee. This brings to 92 the total number of certifications.

Favorable comments on NST program by claim officials

To NST Chairman:

We thought you would like to know that many favorable comments were made by railroad claim officials who listened to the story of National Safe Transit as told by you and your able team at the joint meeting of the Eastern and Chicago Claim Conferences in Buffalo.

The showing of the picture, which so graphically illustrated how the various tests are made on the packaged product and the carloading tests, coupled with the definition and description of the whole program, no doubt strengthened greatly the understanding of all of those present of what you gentlemen are accomplishing for the common benefit of the important industries involved, the customers and the transportation agencies moving the products to the points of sales.

The deep appreciation of the Buffalo group was expressed to you and your colleagues at the meeting to which, may we add, that the writer and our staff here who have been working on these various problems are most grateful to you, the other members of your committee, and the Porcelain Enamel Institute for the strong support that has been given this movement from its inception . . .

If we can be of any special assistance to you in connection with the cooperative work that is being carried on by Special Representative, A. L. Green, let us know what we could do to further the cause of "Safe Transit" for appliances and related articles.

Lewis Pilcher
Executive Vice Chairman
Freight Claim Division
Association of American Railroads
Chicago, Illinois

O'KEEFE & MERRITT, CANADIAN G-E, CONTINENTAL WATER HEATER CERTIFIED FOR SAFE TRANSIT

The National Safe Transit Committee has announced the certification of two West Coast companies and one Canadian firm, bringing to 91 the total number of manufacturers cooperating in the Safe Transit program for combating packaging and shipping losses to home appliances and allied metal products.

The new certifications include: Continental Water Heater Company and O'Keefe & Merritt Company, both of Los Angeles, California, and Canadian General Electric Company, Ltd., Montreal, Canada.

Manufacturers desiring further

information on the NST program should write to the National Safe Transit Committee, 1010 Vermont Avenue, N.W., Washington 5, D. C.

GAYLORD ACQUIRES FAIRFIELD PAPER & CONTAINER

A recent announcement states that Gaylord Container Corp., St. Louis, has completed acquisition of Fairfield Paper & Container Co., with plants in Baltimore, Ohio, and Beaver Falls, Pa. The Fairfield plant in Baltimore is certified (for project 1-a) under the National Safe Transit Program.

Now, more than ever before...

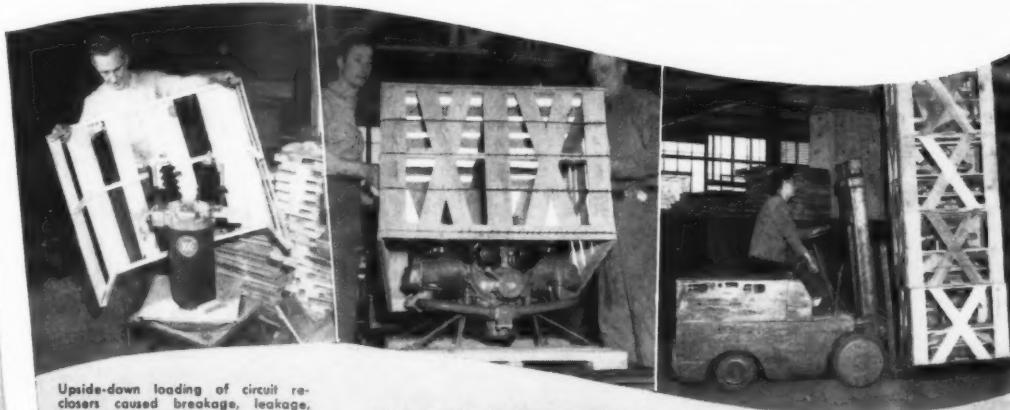
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Losses due to container failure have no place in an industrial economy facing material allocations and shortages. That's why you should investigate *Wirebounds*—which combine the strength of steel with thinner wood to bring you better product protection at lower cost. Three hundred graduate engineers of the Wire-

bound Institute have been technically trained to design tailor-made *Wirebounds* which assure damage-free product delivery. The value of this container engineering is clearly demonstrated in the following case histories. We will be glad to show you how these benefits apply to your product. Use the coupon below.

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Upside-down loading of circuit reclosers caused breakage, leakage, sometimes irreparable damage in handling and transit. Since switching to *Wirebounds*, company reports damage claims have become negligible.

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Flexible power saw maker reduced shipping weight from 820 to 775 pounds, cut crating time 30%. Company stacks and handles units four high. Shipping damage due to container failure has been completely eliminated.

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BOXES & CRATES

choose your course of action...

Send me general information... complete descriptive book titled "What to Expect from *Wirebounds*."

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POSITION

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STREET AND NUMBER

CITY

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OUR PRODUCT IS

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Users names on request

92 Safe Transit Certifications

THE following companies are certified under the National Safe Transit Program.

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AllianceWare, Inc.
Alliance, Ohio
American Central Division
Aveo Mfg. Corp.
Connersville, Indiana
American Stove Company
Cleveland, Ohio
American Stove Company
Lorain, Ohio
American Stove Company
St. Louis, Missouri
Andes Range & Furnace Corporation
Geneva, New York
Apex Electrical Manufacturing Co.
Cleveland, Ohio
Appliance Manufacturing Company
Alliance, Ohio
Automatic Washer Company
Newton, Iowa
The Bellaire Enamel Company
Bellaire, Ohio
Belmont Stamping & Enameling Co.
New Philadelphia, Ohio
Bendix Home Appliances
Division — Aveo Mfg. Corp.
South Bend, Indiana
Boston Stove Foundry Company
Reading, Massachusetts
Caloric Stove Corporation
Topton, Pennsylvania
Canadian General Electric Co., Ltd.
Montreal, Quebec, Canada
Canton Stamping & Enameling Co.
Canton, Ohio
Central Rubber & Steel Corporation
Findlay, Ohio
Chambers Corporation
Shelbyville, Indiana
Chicago Vitreous Enamel Product Co.
Cicero, Illinois
Conlon Bros. Mfg. Co.
Chicago, Illinois
Conlon-Moore Corporation
Chicago, Illinois
Continental Water Heater Co.
Los Angeles, Calif.
Cribben and Sexton Company
Chicago, Illinois
Crosley Division, Aveo Mfg. Corp.
Richmond, Indiana
Crosley Division, Avco Mfg. Corp.
Nashville, Tennessee
Crunden Martin Manufacturing Co.
St. Louis, Missouri
Day & Night Division
Affiliated Gas Equipment, Inc.
Monrovia, California
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Deepfreeze Appliance Division
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St. Louis, Missouri
Malleable Iron Range Company
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The Maytag Company
Newton, Iowa
Meadows Division, Thor Corporation
Bloomington, Illinois
Midwest Manufacturing Company
Division of Admiral Corp.
Galesburg, Illinois
Moffats, Limited
Weston, Ontario, Canada
The Moore Enameling & Mfg. Co.
West Lafayette, Ohio
Mt. Vernon Furnace & Mfg. Co.
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Murray Corporation of America
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Murray Manufacturing Company
Murray, Kentucky
Nash-Kelvinator Corporation
Grand Rapids, Michigan
Nesco, Inc.
Milwaukee, Wisconsin
Newark Stove Company
Newark, Ohio
Norge Division, Borg-Warner Corp.
Efingham, Illinois
Norge Division, Borg-Warner Corp.
Herrin, Illinois
Norge Division, Borg-Warner Corp.
Muskegon Heights, Michigan
Odin Stove Manufacturing Co.
Erie, Pennsylvania
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Los Angeles, California
Payne Furnace Division
Affiliated Gas Equipment, Inc.
Monrovia, California
Perfection Stove Company
Cleveland, Ohio
Philco Corp., Refrigerator Division
Philadelphia, Pennsylvania
Prentiss-Wabers Products Co.
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Ramney Refrigerator Company
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Republi Stamping & Enameling Co.
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Geo. D. Roper Corporation
Rockford, Illinois
Milton Roy Company
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This PACKAGED PRODUCT meets the pre-testing standards established by the National Safe Transit Committee and will withstand ORDINARY transportation and handling hazards.

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SAFE TRANSIT
COMMITTEE



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The Hinde & Dauch Paper Company
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Chicago, Illinois
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U. S. Testing Company, Inc.
Hoboken, New Jersey

Factors in supply and demand for consumer goods

(Continued from Page 21)

this year for plant and equipment than in 1950 — about \$25 billion — with much of this expansion being in defense-supporting facilities. The expectations are that this demand will be greater next year. However, present supplies of basic metals such as steel, copper, and aluminum are inadequate to satisfy both these demands and direct military needs so that not much change in actual plant and equipment outlays is likely next year. Thus, plant and equipment expenditures can be expected to continue strong throughout 1952.

Five points affecting the consumer durables picture

The rising government defense expenditures and the strength in the fixed capital investment programs of business, together with the purchasing power which they generate, will continue to dominate economic activity. . . .

This year many businessmen who have been engaged in the production and distribution of consumers' goods have been greatly disappoint-

ed in their sales and orders. This does not mean that aggregate sales are not high—*their average in the past two quarters has been higher than that of any other quarter except the third of 1950 and the first of this year, when the buying waves occurred.* Rather, expectations had been for an even higher sales rate.

Factors in consumer behavior during recent months were:

1. The consumer buying waves in the third quarter of last year and early this year, with emphasis on purchases of durables, reflected expectations of higher prices and shortages. These purchases, which were considerably above the amounts normally associated with the level of purchasing power prevailing in those periods, resulted in (a) heavy borrowings, (b) depletion of accumulated savings on the part of many consumers, and (c) in the bunching-up of purchases which otherwise would have been made later this year and in 1952.

2. Producers of consumer goods, also anticipating higher prices and

shortages of basic materials, stepped up output and deliveries to distributors far above the rate of consumer purchasing, so that inventories of these goods were accumulated all along the line.

3. With the price freeze imposed by the OPS in January of this year, with the expected shortages not materializing, and with the more favorable news on the Korean front, consumers reduced their purchases of broad categories of goods.

4. Federal tax rates were increased last October, thus absorbing some of the increase in personal incomes.

5. Credit restrictions through Regulation W on consumer credit and Regulation X on mortgage credit affected the ability of many consumers to buy durables and houses. The declining trend in housing activity this year also had some influence on the demand for household durables. . . .

The reduction in personal consumption expenditures since the beginning of the year has occurred at the same time that incomes were rising. From the first to the third quarter of this year, for example, retail sales dropped 8 per cent on seasonally adjusted basis whereas disposable income rose by 5 per cent. This divergence between the trend of consumption and of income meant, of course, a substantial rise in the savings of individuals—from 5 per cent of disposable income in the first quarter to nearly 10 per cent in the past six months. Although there is no sound basis for defining a normal ratio of saving to income, the recent rates are high compared to the average of 4 per cent for the years 1947-1950, this average being influenced by the accumulated shortages of the war which induced a high level of expenditures in the immediate postwar years.

Durables inventories

Changes in the consumer expenditure pattern have resulted in a substantial accumulation of inventories of many consumer goods. On the basis of their past experience businessmen producing and handling these goods expected not only a continuation of the high level of con-

Steel "bogie" wheels—needed on all U. S. Army half-tracks undergo inspection at The B. F. Goodrich Company, Akron, Ohio, before solid rubber tires are vulcanized to rims. The wheels carry the weight of the vehicles, ride within rotating rubber band tracks which provide an endless rubber path on cross-country runs. Many thousands of bogie wheels have been processed by the company this year.



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sumer buying relative to income, which they had enjoyed in the years immediately following the end of the war, but also a further rise resulting from increasing incomes of consumers. For many categories of consumer items the former did not happen and in some cases purchases declined even while incomes were rising. Hence, inventories of many important items became burdensome.

Since May of this year producers, wholesalers, and retailers have reduced stocks of many types of consumer goods, particularly the durables. This resulted in a sharp fall in orders placed with manufacturers for consumer goods.

The seasonally adjusted book value of retail inventories was at a peak in May, four months after the peak of retail sales was reached, and have since declined by more than 5 per cent. Substantial reductions have already occurred in the inventories of certain groups including electrical appliances. Some retailers have adopted a deliberate policy of inventory reduction across the board until stocks reach more normal ratios to sales.

It was only a year ago, when the inflationary forces were at their height, that many economists hoped that consumers would help stem the inflation by saving a larger part of their incomes. This is exactly what has happened and it has been a considerable factor in the stability of many prices and the reductions in others which have occurred in the past six months.

1952 'normal' demand expected to exceed durables production

A key factor in the prospective trends of consumer buying and savings will be the available supplies of consumer durable goods in relation to the demand. Two developments stand out with respect to supplies. Inventories of most consumer durables held by business are still high despite some sizable curtailment in recent months, while production is scheduled for further cuts on the basis of the CMP allotments of steel, copper, and aluminum.

For electrical and home appliances of most types, materials will be al-

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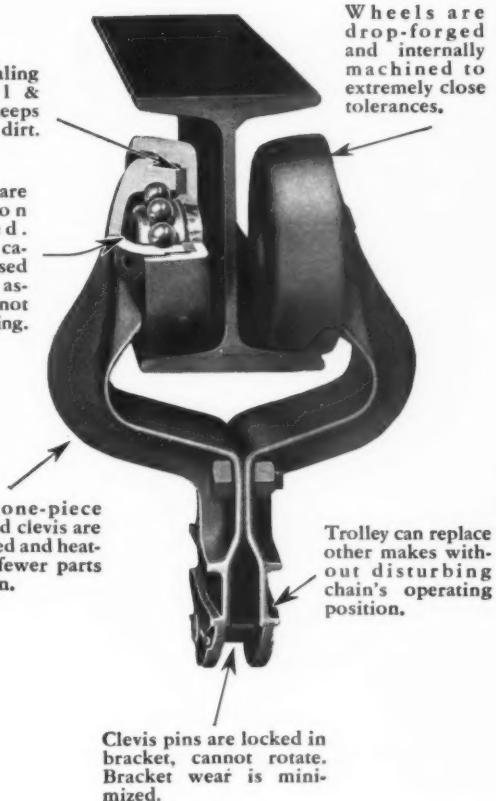
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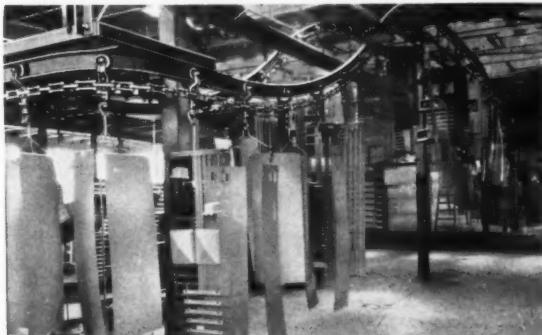
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You can make your overhead trolley conveyor dollars go farther by calling in Link-Belt while you're still in the planning stage. Link-Belt makes the finest trolley on the market today. Equally important, our specialists can draw on the world's largest, most varied background of conveying and power transmission application.

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12,411-B

loted (first quarter of 1952) to permit production at a rate of about 50 per cent of that in the first half of 1950. Through conservation and the use of existing inventories, and of substitute materials, a somewhat higher rate of output may be obtained.

The existence of heavy inventories of some consumer durable items will permit a much larger flow to consumers than is indicated by the allowable production. . . .

Manufacturers and distributors of refrigerators and ranges held about a three months' rate of production on these items. Inventories of radios and television sets held by manufacturers and distributors were somewhat larger. . . .

On the other hand, as indicated, curtailment of these inventories is already well under way.

In general, the expected output of most durables next year, on the basis of the CMP allotments, will be

below the demand normally associated with current incomes and prices—using as a gauge the past patterns of purchasing power relative to these factors. For most durables the real per capita personal income after taxes, or the disposable income adjusted for price and population changes is the principal determining factor in demand. It is of interest to note that, after allowing for the higher prices and increased population, the real per capita disposable income in the first six months of this year, on a seasonally adjusted basis, was not much different from 1950. Preliminary data indicate that the real income in the second half of this year will be somewhat above the first half, and this rising trend is expected to continue into next year.

Calculations were made of the demand for a number of major durables, based on the current rate of real per capita disposable income, prices, and other relevant factors

utilizing the relations which have prevailed in past periods. These indicate a demand for each of the major types of consumer durables well above the permitted rate of output.

The rising needs of the defense and defense-supporting industries for the controlled materials in 1952 are expected to absorb the additional production of these materials. This implies that the controlled materials allotments during the course of the year to the consumer durable goods industries may be little changed from the first quarter 1952 allocations. The allocations of these materials for residential construction imply non-farm housing starts of about 800,000 units next year, compared with over a million this year. The higher purchasing power which will be generated can be expected to increase the demand for many types of durables above the available supply. Consumers may choose to save that part of the income which they cannot utilize for the purchase of such durable goods, or divert part of it to the purchase of goods more readily available.

The continuation of the present defense and defense-supporting programs assures a high level of business activity and purchasing power next year. Some improvement in consumer demand is expected. This will permit in the next several months reductions to more normal levels of most types of consumer durables inventories. The rising purchasing power will be accompanied by a reduction in the output of consumer durables and new houses. Thus, under these conditions the demand for most durables will be in excess of available supply. Present indications for the year ahead are for higher total production. This will be absorbed by rising defense production by the continued strong business purchasing, and by some increase in consumer demand. A sharp rise in any of these three basic demands, however, beyond that now anticipated, would signal the renewal of inflationary pressures.





"NEW USE FOR FASTENER NETS 45% Savings"

SAYS HAMILTON MANUFACTURING COMPANY,
TWO RIVERS, WISCONSIN

**Hamilton "takes the water" out of cost
of assembling clothes dryer drums by
adapting crating SPEED NUT to new use**

When Hamilton engineers saw the heavy duty SPEED NUT designed for attaching products to crates, they got a real cost-cutting idea. Here was the perfect way to simplify the tie-rod assembly on their dryer drums. They could see that trading one fastener for three could lead to lower material costs, less inventory and parts handling, and greatly reduced assembly costs.

All this is confirmed by the Hamilton Standard Department Cost Reduction Report No. 11. The

SPEED NUT method provided a 45% assembly savings — or nearly \$1,500 total annual savings on this application!

Recognizing that there are over 5,000 shapes and sizes of SPEED NUTS, you can see why Tinnerman engineers believe they can find a part to do your job. If the part doesn't exist... they will create one to meet your needs.

A Tinnerman Fastening Analysis costs nothing, yet can show you how to save plenty. Ask about this service and get your copy of Savings Stories, Volume II. TINNERMAN PRODUCTS, INC., Dept. 12, Box 6688, Cleveland, Ohio. In Canada: Dominion Fasteners, Ltd., Hamilton. In Great Britain: Simmonds Aerocessories, Ltd., Treforest, Wales.

One-piece SPEED NUT replaces hex nut, lock washer and square washer. All fastening properties of 3 parts are incorporated in one. Tie-rods of dryer drum are held firmly in vibration-proof grip.

TINNERMAN *Speed Nuts*
Trade Mark Reg. U. S. Pat. Off.
FASTEN THING IN FASTENINGS®

Welcome
TO YOUR NEW
Home Economics
Laboratory



That's right! It belongs to you. For—here's where we "kitchen test" your TK Monotube* surface cooking units. Here's where we develop selling features for your ranges. Here—in this sparkling new, completely equipped kitchen—we make your problems our problems.

How do TK Monotubes perform in making pancakes, for top-of-the-stove roasting, with double boilers? What data should go into instruction books? What demonstrations should your dealers use to sell more ranges?

To help you get the right answers, our Home Economics Department has been in operation for three years. Now—with new facilities—we hope to extend our assistance still further.

TK Monotubes have always been

designed with the housewife in mind. For no matter how good a design looks to an engineer, it's the home-maker who has the final vote. That's why TK Monotubes are so easy to clean. That's why all heats are in the one coil, why the broad, flat surface provides up to 32.8% more contact with utensils for fast, economical cooking. Why the wiring is concealed and protected. These are features we *know* women want. These are features it will pay you to provide.

So when you think of more sales, think of the unit that stands alone. And the extra help available to you at TK. Stop in and visit your new laboratory the next time you are in Chicago. Or—if you have an immediate problem we can help with—write, phone or wire!

*T. M. Reg. U. S. Pat. Off.

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Florence Evert, TK's Director of Home Economics, demonstrates the uniform, all-over cooking heat TK Monotubes provide.



Everything needed to "kitchen test" the units we recommend for your range is here in the laboratory.



Ease of cleaning and other advantages make TK Monotubes the first choice of most range manufacturers.



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